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Planning Board for Nationalised Transport

IN view of the Government's decision that the Special Advisory Group on the British Transport Commission (the "Planning Board") must be a small body which can advise the Government independently of transport operators, the names of the four members announced last week, who are business men, are a good choice. As the Minister of Transport, Mr. Ernest Marples, has stated in Parliament, there are to be no judges in their own cause. The representatives of the Treasury and of the Ministry of Transport, who, it is stated, are to be civil servants, had not been announced as we went to press. The Chairman of the Planning Board, Sir Ivan Stedeford, Chairman & Managing Director of Tube Investments Limited, and two other members, Mr. C. F. Kearton, Joint Managing Director, Courtaulds Limited, and Dr. R. Beeching, Technical Director, Imperial Chemical Industries Limited, are experienced in the management of large industrial concerns, and the fourth, Mr. H. A. Benson, a partner in Cooper Brothers & Company, chartered accountants, has special professional knowledge of financial matters. Rightly, the trades unions are not represented. Besides being to some extent interested parties, in that wages of railway and other transport workers must be considered, there is no reason why the fashionable practice should be followed of

including union representatives on every sort of advisory body. The unions will have ample opportunity to make their views known to the Advisory Group. Their omission is an act of some courage on the part of Mr. Marples and his colleagues. As the Group is to be independent it is hard to see why the Treasury and, even more, the Ministry of Transport, are to be represented on it, rather than express views. The financial questions are surely those which Mr. Benson is specially qualified to consider. Representation of the Ministry of Transport prompts the suggestion that in regard to the British Transport Commission, Mr. Marples' view is that the Ministry's function is to be sharply distinguished from management—a wholesome notion. The Group's task, as he stated last week, will be to examine the structure, finance, and working of the organisations already controlled by the British Transport Commission and advise how effect can be given to the Government's intentions as indicated by the Prime Minister last month. One of its major pre-occupations will be the form and extent of further financial assistance to the railways. The Group has now received its detailed instructions. It is losing no time, for it held its first meeting earlier this week.

New Railway Construction in British Columbia

MR. W. A. C. BENNETT, the Premier of British Columbia, has confirmed that construction of a 700-mile standard-gauge line between a point 50 miles north of Prince George, British Columbia, on the Pacific Great Eastern Railway, and the Yukon border, will start this month. The railway is expected to cost more than \$100,000,000 and will be financed initially by Mr. Axel Wenner-Gren, a director of the Wenner-Gren B.C. Development Company. Other interests will join in the development later. The route has been surveyed and the agreement with the British Columbia Government provided that a start must be made before June 30, 1960, or the option would lapse. An application has been made to the Federal Government of Canada to extend the railway across the Yukon Territory and negotiations are proceeding with United States interests with a view to extending the railway into Alaska to provide the first rail link between Alaska and the rest of the United States. Construction is likely to take three to six years.

Further Research Fellowship in Transport

THE study of the economics and administration of transport has long been pursued at British universities. It has received impetus from the recent foundation by the Institute of Transport of a readership and two lectureships at Oxford. Now the London School of Economics, the doyen of institutions in which special provision is made for transport studies, is to receive further assistance. At the school the Sir Ernest Cassel Reader in Commerce, with special reference to Transport, Mr. G. J. Ponsonby, works in close association with the Departments of Economics and of Business Administration. A gift made by the Trustees of the Rees Jeffreys Road Fund of £5,000 a year for seven years has made possible establishment of a Rees Jeffreys Research Fellowship. It is hoped that the first Fellow will be appointed in time to take up his duties in the academic year 1960-61. Although the Rees Jeffreys Road Fund has a special interest in road transport, the scope of the fellowship is the economics, administration, organisation, and regulation of all forms of transport, which may include air and sea besides inland transport.

International Goods Train Conference

THE European Goods Train Timetable Conference meets twice a year: in the autumn, to discuss new proposals and questions of principle; and in the spring, to work out details of freight train schedules after those for international passenger services have been determined by its passenger counterpart. Most European countries, including the United Kingdom, are represented. The exceptions are Spain, Portugal, the U.S.S.R., Finland, and Turkey. Traffic between the first three of these and the rest of the Continent involves a break of gauge at the frontier, which is being overcome to some extent by changing the axles of wagons; Finland is separated by the sea; and traffic to and from Turkey-in-Europe is reported to be sparse. The

Czechoslovak State Railways is the managing administration of the conference, of which the spring session took place on April 6-13 in Vevey, Switzerland. Road competition has increased the need for quicker international transits by rail. Customs delays have been much reduced. With the help of continuous brakes and electric and diesel traction the speeds of through freight trains are reasonably high. The problem now is largely rationalisation of wagon movement through marshalling yards and other focal points.

Travel to and from Russia

PASSENGER traffic between Britain and the U.S.S.R. is expected to increase, this summer. The overland journey via Harwich and the Hook of Holland, by day steamer, thence by the through dual-gauge sleeping car between the Hook and Moscow, to which reference was made in our April 8 issue, offers much of interest to the traveller. The first class return fare London-Moscow, including sleeping accommodation, but excluding meals, will be about £70, with correspondingly lower charges for less comfortable travel. The throughout journey time is 59 hr. By no means all traffic is expected to originate in the West. The number of visitors from Russia has been increasing. The British Travel & Holidays Association is now issuing attractive travel literature in Russian. Sleeping cars are to be run also between Moscow and Paris. Despite the interest of the overland journeys, which include stops in Berlin and Warsaw, their length may be a disadvantage unless a high standard is achieved in accommodation and refreshment car meals.

D.E.U.A. Luncheon

A RECORD number of people at the annual luncheon of the Diesel Engineers & Users Association in London last week heard Viscount Bruce of Melbourne, the principal guest, praise the aims and achievements of the Association. He drew attention to the formidable obstacles which he knew from personal experience had to be overcome in establishing any organisation to bring together and encourage free discussion between scientists, the universities, industrial designers, financiers, and product users in the field. Yet, in the long term, the great advantages which often ensue from close co-operation at home to the successful development of a product with such diverse applications as the diesel engine, can also be useful in increasing the value of exports. Mr. J. Calderwood, the President, responding, expressed the awareness of the Association of its responsibility for offering facilities for answering the problems of increasing numbers of railway diesel engine users. They, and contractors with diesel-powered mobile plant will be encouraged to benefit from the facilities offered as do engineers responsible for larger industrial plant.

Repairing Indian Flood Breaches

VERY good work was done last autumn when unprecedented floods in the River Tapi, known in British-Indian times as the Tapti, struck the Bombay-Delhi double-track main line of the Indian Western Railway near Surat, some 160 miles from Bombay. This work, which is described in an article on another page, achieved the restoration of single-line working within 16 days in the face of very considerable difficulties. It included the construction of a steel-and-timber trestle and steel girder bridge across a gap nearly 300 ft. wide, and of temporary crib bridges to allow wagons of stone, ashes, and earth to be propelled across other gaps and unloaded to fill them. These materials were railed over distances of up to 400 miles, and a labour force of 3,000 was collected from almost equal distances. The Indians have learnt the lesson of the threat of epidemics in such labour-massing unless thorough sanitary measures are taken to combat it. With all permanent communications destroyed, the rapid provision of wireless and field-telephone systems was a major issue successfully met.

Scottish East Coast Acceleration

UNUSUAL interest attaches to the transformation from April 4, of the passenger service over the Forth Bridge. The new Edinburgh-Aberdeen expresses represent the third

attempt to bring Aberdeen within 3 hr. of the Scottish capital. The first was in 1906, when competition between the North British and Caledonian Railways was at its height; but the new N.B.R. Reid Atlantics proved incapable of maintaining such times with their seven-coach loads, and the schedules were soon increased. The second was in 1937, by which time Gresley's powerful "P2" 2-8-2s and Pacifics were available; one train each way was put on a 3-hr. timing. More notable, however, was the 3-hr. 8-min. schedule of the 6.40 a.m. from Aberdeen, so timed and with eight intermediate stops, to bring it into Edinburgh in time to connect with the southbound "Flying Scotsman." These fast times ceased on the outbreak of war in 1939. With the ample diesel power now in use, the present average cut of 30 min. in the times of all the daily express trains between Edinburgh and Aberdeen, 3-hr. trains included, should prove a first step only towards even faster times over this 130½-mile course, despite its difficulties of grading and curvature.

Fewer Steam Services in the South East

WITHDRAWAL of passenger services from the Gravesend to Allhallows and Grain and from the Dunton Green to Westerham branches of the South-Eastern Division of British Railways, Southern Region, will leave very little steam haulage in that Division after completion of electrification from Sevenoaks and Maidstone East to Ashford, Dover, Canterbury West, and Ramsgate. By that time (the summer of 1962) the remaining steam services on lines not electrified probably will have been replaced by diesel trains. Passenger services on the major line not scheduled for electrification, that from Tonbridge via Tunbridge Wells to Hastings, are already worked by multiple-unit diesel sets. The Transport Users' Consultative Committee for the South Eastern Area, which the Southern Region has notified of its desire to withdraw the passenger services mentioned, is likely to agree in view of the ready access in the areas to electric services, and of the estimated annual savings, with allowance for the cost of additional bus services. These would be £25,500 for the Allhallows and Grain, and £11,600 for the Westerham branches. The branch to Allhallows-on-Sea has been an unsuccessful venture; it was built by the Southern Railway in 1932, but the resort has not developed as was hoped.

Station Guides

THE need to maintain passengers' confidence in, and regard for, the railways as helpful providers of service is causing railway managements in several countries to increase the number of guides at larger passenger stations. Steps taken by the North Eastern Region of British Railways, for instance, are described on another page. Additional guides are being appointed at the principal stations at Newcastle-upon-Tyne, Leeds, Bradford, and York. Guides supplement the work of the trained staffs of station inquiry offices, who cannot leave their posts to show a passenger the way, for example, to a platform. Their existence does not mean that inspectors, porters, and other staff are relieved of their duty of helping passengers, but guides are in a much better position to do so. The many additional facilities provided by the railways and alterations in services increase the knowledge which can now be expected only in specialists. A good many people travel by train comparatively rarely, with consequent need for guidance in matters of railway travel.

Obstacles to Travel

THE concession by the Home Office which enables people from Belgium, Holland, and Luxembourg to come to Britain without passports for social or holiday visits of up to three months, is a move in the right direction. The visitors must hold identity cards, with special visitors' cards produced by the British Travel & Holidays Association and obtainable from British Railways offices and agents abroad. No doubt this relaxation of the immigration regulations is being accompanied by a speeding up of the tedious, if courteously conducted, formalities for non-British subjects at our packet ports. The Board of Customs & Excise should also assist the tourist trade and promote international goodwill by agreeing to examine hand baggage in boat trains, or even on arrival

in London. The delays at ports caused by Customs examinations lessen the pleasure of travel from, and sometimes to, the Continent by rail and sea routes, besides adding unnecessarily to journey times.

Margam Marshalling Yard

ON Monday, April 11, the new marshalling yard at Margam in the Western Region of British Railways was opened by Mr. K. W. C. Grand, formerly General Manager of the Region and now a Member of the British Transport Commission. Elsewhere in this issue we describe the ceremony, and we also include an illustrated article dealing with the new yard and its intended place in the Region's share of British Railways' modernisation plan. The new yard has been built on the experience gained in both British and American yards and incorporates several new features. It is the first large hump yard to be equipped with retarder brakes on the Western Region and, in fact, is the most wholly-automatic yard so far to be built in this country. Designed and built under the direction of Mr. M. G. R. Smith, Chief Civil Engineer, Mr. R. A. Smeddle, Chief Mechanical & Electrical Engineer, and Mr. A. A. Cardani, Signal Engineer, of the Western Region, it will allow the Region to make the best possible use of the new freight opportunities offering under the expanding national economy.

Fatigue of Welded Structures

BRITISH Railways and the Netherlands Railways were represented at the international symposium on the fatigue of welded structures arranged by the British Welding Research Association and held last month at the Engineering Laboratories of Cambridge University. The chairmen at the five sessions were Dr. R. Weck of the B.W.R.A., Professor J. F. Baker of the Engineering Faculty of Cambridge University, Professor W. H. Munse of the University of Illinois, Mr. W. H. Cox of the Department of Industrial & Scientific Research, and Dr. A. A. Wells of the B.W.R.A. Papers discussed covered the fatigue strength of fillet-welded joints in steel, systemisation of the fatigue strength values of mild steel welds, factors influencing the fatigue behaviour of welded aluminium, the effect of mean stress on the fatigue strength of aluminium alloy butt-welded joints, and the metallurgical and engineering aspects of future research. The discussions showed a marked agreement in results from research into the effect of fillet welds on mild steel carried out in the U.K., the U.S.A., and Eastern Germany.

Coating Welds with Plastics

A POINT brought out by the delegates from Eastern Germany to the Cambridge symposium on welding was the improvement which resulted from coating welds with plastics. Emphasis was laid on the importance of the geometry of design, the magnitude of the residual stresses, and the degree of perfection of the welds. The general opinion was that in welding, the permissibles given in the latest revision of British Standard 153, were inclined to be over-optimistic when dealing with endurances which exceeded 2,000,000 for certain ranges of stress; and in this field high-tensile steel did not seem to be as satisfactory as the mild steels. Attention was drawn once more to the dangers which could accompany the use of welding in the hands of the inexperienced designer. In welding, perhaps more than in the use of any other structural connector, a little knowledge can be a dangerous thing. The proceedings of the symposium are of considerable interest to railway engineers and manufacturers of equipment for the railways.

German Pacifics

TOWARDS the end of 1959 was withdrawn from active service the first of the well-known German "01" class 4-6-2 steam locomotives first constructed in 1925. The year also saw the completion of what is to be the last new steam locomotive of the German Federal Railway. The "01" was the first *einheits*, or standard locomotive, to be designed and built for the old Deutsche Reichsbahn; but in the beginning the first batch of these two-cylinder simple-expansion pacifics was

paralleled by a prototype batch of four-cylinder compound engines known as Class "02," and similar, apart from the cylinders and motion, to the "01" series. Despite high thermal efficiency, on test up to 9 per cent at the drawbar, Series "02" was not repeated, but construction of the "01" series was continued up to 1940, and to a total of 289 locomotives. In 1930 modifications were made to the basic conception to produce the lighter "03" class of 4-6-2, of 18½ tons axle-load against the 20 tons of Series "01," and many of these lighter machines had three-cylinder simple propulsion. Within the last three or four years some of the "01" engines have been arranged for oil burning.

Indian Railways' Plans and Achievements

A REVIEW of the activities of the Indian railways during the past year has been given by Mr. Jagjivan Ram, Minister of Railways, in presenting to Parliament the railway budget for 1960-61. The revenue surplus for the coming year, after meeting the large commitments arising from the Pay Commission recommendations, is expected to be some £3,400,000 on the basis of existing rates and fares. For the current year the revised estimate of surplus is £11,000,000, against the budget figure of £16,500,000. The railways' increasing commitments necessitate adjustments in goods rates. From April 1 goods and coal traffic rates, excluding export ores, have been increased by 5 per cent. This apparently has been accepted by the public as inevitable. Passenger fares are to remain unchanged, partly, no doubt, for sociological reasons. An increase of only 4 per cent has been made in freight rates from October 1, 1958, as against an overall rise of about 13 per cent recommended by the Railway Freight Structure Inquiry Committee.

Among the major achievements during the current year, the Minister has pointed out that against an increase of 2.5 million tons in goods traffic in 1958-59, the railways will probably have carried a little over 10 million tons in 1959-60, practically all the goods traffic offered. With increasing stabilisation of the national economy and steel production getting into its stride, a further 70 per cent rise in goods traffic is forecast for 1960-61; if this is realised, the railways will reach their objective of moving 162 million tons laid down in the second Five-Year Plan. India is now self-sufficient in steam locomotives and passenger and goods vehicles, and Indian industry, it is stated, is now ready to export some railway material at competitive prices. The Chittaranjan Locomotive Works has reached the production target set in the second Five-Year Plan and is now considered by the Government to be prepared for planned production, in increasing quantities, of electric locomotives. The Integral Coach Factory at Perambur has been stepping up output as planned. Wagon construction has been delayed by delays in delivery of steel at a peak period of wagon demand. It was expected recently that steel supplies would increase, and special steps are stated to have been taken to overtake arrears in wagon building. Wagon user is improving. About 10 per cent more traffic than in 1958-59 is being carried with 3 per cent more wagons available.

Opening on May 1, 1959, by the Prime Minister, Mr. Jawaharlal Nehru, of the rail-and-road bridge over the Ganges at Mokameh is a major event mentioned by Mr. Jagjivan Ram. The work was completed eight months ahead of schedule. The foundation stone of the bridge over the Brahmaputra near Pandu was laid by Mr. Nehru on January 10 last. Work is stated to be well in hand. Completion of this bridge will supply an important missing link in the railways in Assam, and will greatly assist the industrial growth of North East India.

Electrification work on the Durgapur-Gaya, Asansol-Sini-Tatanagar-Rourkela and Rajkharwan-Dongoaposi on the Eastern and South Eastern Railways is progressing satisfactorily, and is expected to be completed during the Second Plan. As to the remaining sections, contracts for the supply and erection of overhead equipment for sections Gaya-Moghal Sarai and Khargpur-Tatanagar were stated recently to be about to be placed. Civil engineering works preparatory to electrification are in progress on the Sealdah-Ranaghat and Dum Dum-Bongaon sections. On the Igatpuri-Bhusaval section of the Central Railway civil engineering survey is proceeding. On the metre-gauge Madras-Tambaram-Villupuram section

of the Southern Railway, 80 per cent of the civil engineering works are complete, and technical details for conversion are being worked out.

To maintain general operational efficiency, energetic steps are being taken to ensure speedy loading and unloading of wagons; delays in marshalling yards are under constant review; the loads of goods trains are being watched; and the making-up of block-loads is being resorted to. Express goods services are being extended wherever practicable. It had been considered that longer and heavier freight trains could provide an effective solution to the problems in the steel-producing and coal-mining areas. With growing industrialisation, Mr. Jagjivan Ram has stated, this would equally apply to some other areas. A small nucleus of large-capacity bogie wagons, fitted with couplers of adequate strength, with suitable types of diesel, steam, or electric motive power, has been procured for this purpose. One hundred main-line diesel locomotives have been commissioned for this traffic. A few 3,000-ton trains, as against the normal load of 1,900 tons, have already been introduced. Trials with trains loads up to 6,800 tons have also been conducted.

The problem of passenger train punctuality is receiving special attention. The average performance in 1958-59 did not show a significant change compared with the previous year, though it was slightly better. During the summer months, when human endurance is taxed to the utmost and in rainy months when other factors intervene, the performance has greatly improved. Results attained for all trains during the period April to October, 1959, were 82.9 per cent on broad gauge and 81.8 per cent on metre gauge, as compared to 76.3 per cent and 79.0 per cent respectively during the corresponding period of the previous year. A notable addition to passenger amenities has been the introduction of further third class "sleeper coaches," affording lying-down accommodation without supplementary charge.

The Victorian Railways in 1958-59

MR. E. H. BROWNBILL, Chairman of the Victorian Railways Commissioners, has sent us a copy of the Victorian Railways report for the year ended June 30, 1959. It shows that total revenue was £2,180,582 greater than in 1957-58, due mainly to increased goods traffic and improved earnings from suburban passenger traffic in consequence of the revised scale of fares introduced from September 14, 1958. These increases were partly offset by reductions in the revenue from country passenger services, livestock, parcels, and decreases totalling £28,564 in certain other items. Compared with the previous year, the net decrease in working expenses was £83,799. The gross reduction was £709,800, comprising savings effected in locomotive power costs, maintenance of fixed facilities, lower operating expenses due to the closure of departmentally owned tramway services, and non-recurring payments made the previous year to the Brighton and Sandringham Council in connection with the closing of such tramways.

Some of the principal results of working the railways in 1957-58 and 1958-59 are as follow:

	1957-58	1958-59
Average route-mileage open	4,402	4,357
Train-miles	18,353,472	18,426,495
Passenger journeys	167,661,724	163,482,829
Goods and livestock, tons	8,891,859	9,295,015
	£A	£A
Passenger, parcels, etc., revenue	12,481,613	13,364,518
Goods and livestock revenue	20,849,159	22,125,822
Total earnings	35,966,360	38,163,680
Working expenses	38,174,019	38,119,057
Net revenue	-2,207,659	44,623

Notwithstanding the further improvements made in country passenger services and the introduction of modern air-conditioned carriages on additional lines, the number of passengers carried showed a decrease of almost 160,000 compared with 1957-58. The decrease in revenue was not proportionate to the reduction in passenger journeys, partly on account of an increase of 2.5 per cent in the average number of miles per passenger journey compared with the previous year, and also as a result of the withdrawal, from September 26, 1958, of day return fares which had been in operation on country lines, as a trial measure, on Tuesdays, Wednesdays, and Thursdays during the preceding 12 months. These fares, which represented a reduction of 20 per cent on the ordinary return fares, were withdrawn because they failed to attract sufficient additional patronage to offset the reduced revenue

received from existing business.

The number of passengers carried by suburban rail services was 158,612,835, a decrease of 4,018,901, or 2.47 per cent, in comparison with the previous year, due in no small measure to resistance to the increased fares adopted in conjunction with the introduction of one class travel from September 14, 1958. Despite this loss of traffic, the net gain in revenue from the amended fares amounted to £897,568. Goods revenue showed an increase of £1,460,138 compared with the previous year. The average revenue per ton mile was 3.90d., a decrease of .05d. per ton mile in comparison with the previous year, while the average haul increased from 140 to 145 miles.

In pursuance of the Commissioners' policy of modernising the system, orders were placed during the year for additional diesel locomotives, while rolling stock constructed in departmental workshops included two diesel-hydraulic shunting locomotives, a number of improved types of goods vehicles, and a further group of air-conditioned saloon type passenger carriages. Orders were also placed for a further 30 "Harris" trains for suburban services.

The completion of additional track and signalling facilities on certain suburban lines enabled improved train services to be provided, especially during peak periods, and a greater all-round frequency of service was provided to many outer suburban areas. Further progress was made in the construction of Richmond Station, which is a key project in the long range programme of improvement of suburban train services, while other works embraced in this scheme were pursued to the extent of the available finances.

The introduction of incentive rates for bulk loading handled through forwarding agents between Melbourne and Sydney having proved successful, a similar arrangement was extended, early in 1959, to traffic between Melbourne and Adelaide, and subsequently between Melbourne and Brisbane. The results achieved already have been sufficiently encouraging to justify the action taken. The importance to the Department of traffic forwarded under the bulk loading scheme is illustrated by the increase in revenue from this source during the year. Between Melbourne and Sydney alone, more than 108,000 tons of traffic was handled through forwarding agents for a revenue return of some £681,000, an increase of almost 30 per cent compared with the previous year. A further benefit accruing from the scheme is the improvement in the average tonnage per loaded wagon.

Satisfactory progress was maintained in the construction of the standard-gauge line from Albury to Melbourne. Of the 195 bridges requiring duplication, substructure work was completed on 94. Work was sufficiently advanced on an additional 16 bridges to enable the earthworks to be commenced, while the duplication of a further 37 was started. Steelwork for the bridges is being obtained from the Department of Railways, New South Wales, and is erected as received. Of a total of 411 culverts to be extended, 185 were completed and work commenced on a further 46.

Steam shunting locomotives are being progressively retired on account of obsolescence. For this type of service it has been established that, for the same horse power, diesel-hydraulic locomotives involve a lower capital cost than diesel electric locomotives. An order was accordingly placed for the supply of 25 650-h.p. diesel-hydraulic locomotives.

British Transport Commission Traffic Receipts

BRITISH Railways freight receipts for Period 3, the four weeks ended March 27, are disappointing. At £25,465,000 they were less than the total (£25,553,000) for the preceding four weeks and much the same as a year ago, in so far as direct comparison is possible in view of the discrepancy in the dates of the periods. Mineral receipts at £3,952,000 made a better showing, and compare with £3,831,000 for Period 2 and with £3,553,000 for the corresponding weeks of 1959. Even so, in view of the increased activity in the steel industry, better traffics might have been expected.

Merchandise receipts were slightly more than a year ago, and better than for Period 2, a poor four weeks. Rather more was to be hoped for in view of the drive to capture traffic. The drop in coal class traffic was to be expected. The total freight, parcels, and mail receipts of the British Transport Commission for the 12 weeks to March 27 at £89,226,000 slightly exceeded last year's figure.

	Four weeks to		Incr. or decr.	Aggregate for 12 weeks to		Incr. or decr.
	Mar. 27, 1960	Mar. 22, 1959		Mar. 27, 1960	Mar. 22, 1959	
	£000	£000	£000	£000	£000	£000
Passengers						
British Railways ...	9,488	8,860	+ 628	27,353	25,507	+ 1,846
London Transport Road Passenger Services	4,253	4,138	+ 115	12,650	11,931	+ 719
Railways ...	1,981	1,838	+ 143	5,857	5,510	+ 347
Provincial & Scottish Buses ...	4,189	4,093	+ 96	12,327	12,018	+ 309
Ships ...	202	220	- 18	624	681	- 57
Total passengers ...	20,113	19,149	+ 964	58,811	55,647	+ 3,164
Freight, Parcels & Mails						
British Railways						
*Merchandise & live- stock ...	8,071	7,929	+ 142	23,775	23,077	+ 698
*Minerals ...	3,952	3,553	+ 399	11,733	10,635	+ 1,098
*Coal & coke ...	9,236	9,660	- 424	28,804	29,911	- 1,107
*Parcels, etc., by coaching train ...	4,206	4,206	—	12,159	11,980	+ 179
*Total freight British Railways ...	25,465	25,348	+ 117	76,471	75,603	+ 868
*Others† ...	4,705	4,218	+ 487	12,755	12,039	+ 716
Total freight, parcels & mails ...	30,170	29,566	+ 604	89,226	87,642	+ 1,584
Total ...	50,283	48,715	+ 1,568	148,037	143,289	+ 4,748

* Includes receipts from collection and delivery

† Inland waterways freight, road haulage, and ships

Passenger receipts follow much the same pattern as last year. They show an increase over the preceding four weeks which is partly seasonal and partly attributable, as regards railway receipts, to the threat of a railway strike which caused some people in February to arrange to travel by road. British Railways passenger receipts at £9,488,000 only slightly exceeded the corresponding total last year. It would be reasonable to hope for a greater increase in view of the success of new electric and diesel services. Ships' passenger receipts remained below the 1959 figure; which of the services was adversely affected is not stated.

Total traffic receipts of the Commission for the 12 weeks to March 27, almost the first quarter of 1960, were £148,037,000, against £143,289,000 for the 12-week period ended March 22 of last year.

PERCENTAGE VARIATION 1960 COMPARED WITH 1959

	Four weeks to March 27	Twelve weeks to March 27
British Railways:		
Passengers ...	+ 7.0	+ 7.2
Parcels ...	—	+ 1.4
Merchandise & livestock ...	+ 1.7	+ 3.0
Minerals ...	+ 11.2	+ 10.3
Coal & coke ...	- 4.3	- 3.7
Total ...	+ 2.1	+ 2.6
Ships (passengers) ...	- 8.1	- 8.3
British Road Services, Inland Waterways & Ships (cargo) ...	+ 11.5	+ 5.9
Road Passenger Transport, Provincial & Scottish... ..	+ 2.3	+ 2.6
London Transport:		
Railways... ..	+ 7.7	+ 6.2
Road services ...	+ 2.7	+ 6.0
Total ...	+ 4.3	+ 6.1
Aggregate ...	+ 3.2	+ 3.3

Freight Movement on U.S.A. Railways

THE February report of the Association of American Railroads on the transport situation shows a moderate improvement in revenue wagon-loadings. In five weeks to February 6 these numbered 2,974,440, an increase of 133,480, or 4.7 per cent, on 1959, and of 197,735, or 7 per cent, on 1958. General merchandise, filling more than half the total number of wagons, accounted for an increase of 126,800 loads, or 9 per cent, but 17,450 fewer wagons carried "smalls," which shrank in volume by 8 per cent. Grain forwardings were down 11 per cent and coal loadings almost unchanged, though after the steel strike settlement the movement of coke and ore rose by over a third.

Wagon supply was adequate. The loading of 22,740 flat wagons for the week to February 6 was the highest record in recent years. In that week 10,696 flat wagons carried road

trailers, an all-time record. Over the first five weeks of the year such loadings numbered 48,940, a rise on 1959 of 15,740 (47 per cent) and of 26,450 (117 per cent) on 1958. This type of road-rail service is extending rapidly. On the other hand the quantity of coal exported in January was 2,004,890 tons compared with 2,988,110 tons during January, 1959, a fall of nearly a third. Other traffic of a general nature handled through the U.S.A. ports also showed a decrease of 9 per cent from January, 1959, measured by wagon-loads.

At February 1, the railroads owned 48,380 fewer wagons than they had a year earlier, a loss of nearly 3 per cent. The number of wagons under repair was, however, reduced by 30,580, or nearly one-fifth. To cope with a growing traffic they had about 17,800 fewer serviceable wagons, a drop of 1 per cent, and are bent on reducing the under repair percentage of seven quickly until 44,000 new wagons on order are delivered.

Publicity in Excelsis

(By a correspondent)

IN 1959 the Public Relations Department of the Association of American Railroads distributed more than 10,687,000 copies of publications designed to give the people of the United States a clear understanding of railroad problems. That was the largest volume of literature issued in A.A.R. history and exceeded the previous record by 1,500,000, or 17 per cent.

Three events helped to swell the volume of publicity. The passing of the Transportation Act, 1958, led to the issue of 150,900 copies of a 22-page booklet entitled "Transport Tally, 1958," which explained how the Act gave some relief to the railroads, but presented a list of subjects left for later decision. To keep the public interest in these matters alive, several pamphlets were circulated freely. For instance, 481,000 copies of a booklet styled "That Travel Tax!" urged repeal of the Federal excise tax on passenger fares.

Next, in February, 1959, Mr. D. P. Loomis, President, A.A.R., began a campaign to win public support for the railroads' efforts to get rid of featherbedding waste caused by outmoded work rules. At St. Louis he gave a vigorous address entitled "Year of Decision: Clear Track or Crisis?" In quick time 223,200 copies of his speech were scattered over all the States. Hot foot there went forth 2,000 copies of a "Speaker's Handbook on Featherbedding," 16,000 copies of a booklet, "Facts about Featherbedding," and a special issue, dealing with this subject, of *Railway Digest*, which goes regularly to 17,500 railwaymen and 8,000 other people interested in transport.

In lighter vein the A.A.R. took part in celebrating the 150th anniversary of Abraham Lincoln's birth by distributing 1,637,000 copies of a cartoon-style booklet entitled "All Aboard, Mr. Lincoln!" The brochure aimed at inspiring its readers with a share of the national hero's faith in rail transport as a means of developing his great country.

Apart from these special calls for propaganda, the Public Relations Department circulated large numbers of 30 or 40 papers emphasising the importance of rail transport to the national well-being and defence in times of emergency. The distribution was done on a carefully considered system. For example, 1,200 university and college professors, who wanted information about railroad developments, received a monthly bulletin of appropriate news. Even the Negro community had a share of the publicity programme assigned to it.

The A.A.R. is confident that public attention has been drawn effectively to the need of the railroads for equitable treatment by Government and State agencies. The stir made by publicity swelled the number of inquiries addressed to the Public Relations Department last year to 138,000. The press also took more interest in railroad questions than ever before. More significant still, a committee of the House of Representatives, which inquired into the adequacy of transport in support of national defence, reported in October that "the versatility and adaptability of rail transport, as thoroughly demonstrated on a worldwide basis under all kinds of conditions, is but one of the reasons why military logistical planning is built around the railroads for the bulk of its freight and passenger movements. The other forms of transport, important as they are to the total need, are auxiliary and supplemental to the railroads."

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of correspondents)

Electric Working through the Channel Tunnel

April 6

SIR,—I have just seen Mr. T. R. Hume's letter in your April 1 issue.

The main reason for proposing 25 kV. for the Channel Tunnel is that only by using that system can a sub-station in the middle of the tunnel, under the sea, be avoided. I pointed out in my paper to the Institute of Transport on March 14 that with 25 kV. we could have our sub-stations at the top of the main coastal shafts on either side of the Channel.

A further point is that the French National Railways will have available the 25-kV. locomotives for working traffic as far as the English portal station. The signalling system will, of course, be equipped with every possible device to ensure safety and prevent collisions.

Yours faithfully,

M. A. CAMERON

British Transport Commission,
222, Marylebone Road, N.W.1

Decentralisation on British Railways

April 5

SIR,—In view of the remarks made by Mr. A. N. Wedgwood Benn in the House of Commons which were referred to in the editorial article on April 1, it is of interest to look back at the results of 10 years of central direction of rolling stock design.

After nationalisation, plans for electrification and a change to diesel power which had been well advanced by certain of the former railway companies were halted by the Railway Executive in favour of extensive building of steam locomotives for British Railways. This has merely had the effect of adding to, rather than reducing, the number of types of steam locomotives in each Region.

This early pre-occupation with steam power meant that no serious development was pursued with diesel locomotives, with the result that the number of types of line-service diesel locomotives now in service on British Railways is a source of wonderment to the world at large.

In the case of diesel multiple units, although a large proportion of the diesel-mechanical railcars are basically similar, there are some variants which cannot run in multiple together. There are also two incompatible types of diesel-electric train.

As to electrification, the Southern Region d.c. electrification is extending, whilst in the other Regions a.c. has been adopted. Already two widely different designs of a.c. multiple-unit train for similar types of service have appeared in different Regions, probably for very good reasons.

With regard to coaching stock, the most remarkable feature seems to be that after 10 years in which to produce a modern bogie, use is now being made of an American design which has none of the advanced features leading to better availability such as are found in modern European designs. One of the first decisions taken after the formation of the Railway Executive in 1948 was the adoption of the buckeye coupler, largely on safety grounds. Since that date not a single goods wagon or locomotive has been so equipped, neither have the diesel-mechanical trains. In fact yet another and different type of coupler is under development for goods stock. Similar examples of failure to take advantage of new techniques could be quoted almost *ad infinitum*.

The above shows the total failure of the over-organised B.T.C. structure, with its large Central Staff and innumerable Regional committees so wasteful in manpower, to make any fundamental contribution to the technical and financial well-being of British Railways. The very existence of this system of design by remote control and committee makes practically impossible the emergence of any advanced development in technical matters.

The fact is that each Region is of such a size that its annual rolling stock requirements represent an economic quantity for ordering purposes based on the batch production system

used in this country. By giving autonomy to the Regions, their differing requirements can be exactly catered for. What is more important, any demand for special equipment, more particularly on the freight side, could be met before competing interests took the traffic.

The present troubles of British Railways do not arise from nationalisation as such, but from the sheer size of the undertaking. The restoration of Regional autonomy would merely follow the present-day pattern of industrial organisation, and indeed of the B.T.C. bus undertakings. The smooth and efficient working of any transport undertaking depends on the harmonious co-operation of individual personalities, which immediately limits its size.

You consider Regional self-accountability to be not worth while if it requires re-establishment of the Clearing House. I suggest that with modern equipment, a staff of 100 should be ample. If this opens the way to the elimination of British Railways Central Staff, it would be money well spent. I believe the present strength of the latter is now about 1,000, and this has not resulted in any reduction in the staff employed in Regional establishments.

Yours faithfully,

W. J. WILLIAMS

10, Rathgar Avenue, W.13

The Victoria Line, L.T.E.

April 6

SIR,—May I refer to Mr. F. E. Lamond's letter published on March 25? He suggests that the Victoria Line—Northern Line cross-platform interchange would be better made at Warren Street, Northern Line (West End side), rather than at Euston (with the City side platforms).

The facilities have been arranged in this way after a very careful assessment of the passenger interchanges which will take place along the whole of the Victoria Line and their effects on other lines. The main volume of Underground railway transfer traffic in the Euston area will be between the Northern Line Edgware and Barnet branches and Victoria Line West End stations.

On the two branches of the Northern Line the City trains are less heavily loaded. By making it convenient for Northern Line passengers bound for Oxford Circus, Green Park, and Victoria to use the City trains to Euston, with a cross-platform interchange, the balance of passenger loadings between West End and City trains will be improved, making for better general conditions of travel. It will be possible to adjust the balance of present Northern Line West End and City services as required when the Victoria Line is operating.

A large proportion of the other interchanges which Mr. Lamond suggests could be better made *via* Warren Street will, in fact, be more easily effected at other Victoria Line cross-platform interchanges. Passengers between Kings Cross and Charing Cross or Waterloo for instance, will use the Oxford Circus Victoria Line/Bakerloo Line cross-platform interchange (which will be one station less than *via* Warren Street and the Northern Line); Walthamstow/Seven Sisters to Leicester Square passengers will use the Victoria Line/Piccadilly Line cross-platform interchange at Finsbury Park.

Any transfer passengers not covered by these facilities will, of course, have the normal and fully adequate Victoria Line/Northern Line interchange facilities at both Warren Street and Euston (West End).

Apart from traffic considerations, a cross-platform interchange at Warren Street would be difficult to provide in view of the angle at which the Victoria and Northern Lines cross. It would involve lengthening the Victoria route between Euston and Oxford Circus and the introduction of sharp curves, with severe speed restrictions.

Yours faithfully,

R. M. ROBBINS
Chief Public Relations Officer

London Transport Executive,
55, Broadway, S.W.1

THE SCRAP HEAP

Portable Radios Banned

The French Government has forbidden the use of portable wireless sets in trains and on platforms and in waiting rooms at stations. With the development of transistor sets and the mass production of cheap portable radios, there is a tendency, it is stated, for people to carry them wherever they go.

On the Wrong Track

Trains were delayed for 50 minutes during the rush hour on April 1 after a runaway horse had galloped along the track at Barkingside, Central Line, London Transport Executive, and had been electrocuted on the live rail. The horse apparently broke through goods sidings before running on to the track. Normal train running was resumed after the carcass had been removed.

Research ?

Waiting in a suburban station, I saw a coal-train go slowly puffing past. The driver was a kindly, middle-aged, weather-beaten character who would not have looked out of place in a pageant called "Clapham Junction Through the Ages." Behind him, however, stood a tall, thin, severe-looking figure with psychiatrist's spectacles, wearing what looked like a high-buttoned dentist's tunic, carrying a formidable black-bound notebook and peering keenly about him on every side. . . . The least frightening explanation would be that it had something to do with the new British Railways Staff College.—*From "The Daily Telegraph."*

A Statistical Oddity

In America a keen watch is kept on the scheme for loading road trailers on railway flat wagons. For the week ended February 27 these loadings numbered 9,999, an increase of 3,099, or 45 per cent, on the 6,900 recorded in the same week last year. A shame that one more load was not found to make the total 10,000 and odd that all the above figures are multiples of three! Total wagon loadings for this year through March 5, as the Americans say, were 5,236,930, an advance of 1.4 per cent on 1959 and nearly 7 per cent on 1958. Neither rail nor road freight traffic in the U.S.A. has expanded rapidly after the long drawn-out steel strike of 1959 was settled.

Special Train

Few of us have ever bespoken a special train. What fun it must be! We may recall an exciting moment in Sherlock Holmes's final adventure when Professor Moriarty is in hot pursuit of him to Dover. He misses the train in London and instantly orders out a special. Holmes and Watson, having prudently alighted at an intervening station, see a feather of smoke in the distance above the Kentish woods and in an instant with a rush and a roar the great criminal comes past them rocking and swaying in his solitary carriage. Even though he was revolving murder in his mind he

must have enjoyed a boyishly delicious and majestic sensation. . . . No doubt the sleeping car in more commonplace circumstances can afford these selfish joys in full measure. When the train stops at a station in the middle of the night, when time has ceased to exist and there is a great clanging of milk cans and a sound of passengers searching for their carriages, it is idle to deny the satisfaction of our own impregnable privacy. It is worth waking up just to gloat over it.—*From "The Times."*

Specialised Assembly (1890)

The building of railway wagons was, perhaps, the first recognition of specialised assembly. At first they were built by gangs; each crew would build its own wagon from start to finish. About 1890 specialised assembly was started, each crew having a different function as the wagon went by. Mass assembly started with R. E. Olds, who in 1906 put together a product by that technique, although he did not use a conveyor. Carts were used, loaded with a set of engine components, and were pushed along the assembly lines. The engines were assembled alongside these trucks.—*From "Man and Automation," by L. Landon Goodman (1957).*

Brontë Railway Associations

Haworth Station, on the Worth Valley line, from Keighley, to Oxenhope, of the former Midland Railway may not have been used by Charlotte Brontë, who lived at Haworth with her sisters Emily and Anne and other members of the family. Charlotte survived until 1855. The line was taken over by the Midland Railway in 1868, but seems to have existed as an independent concern for some years previously. The illustration shows a push-and-pull set of British Railways, North Eastern Region, entering the station. Charlotte's brother, Branwell, in the early

1840's was clerk-in-charge of Luddendenfoot Station, on the main line of the Manchester & Leeds (later Lancashire & Yorkshire) Railway, now part of the London Midland Region, between Todmorden and Sowerby Bridge. He drank to excess. In 1842, after his cash was found to be short by some £11, he was dismissed, and an appeal for his reinstatement failed.

Developing Railway Property

In 1845, *The Times* was reporting an inquiry into an extension of the London and South Western Railway. Mr. Tite, the Architect and Surveyor, was giving evidence: "Mr. Tite endeavoured to console (opponents) by . . . referring to the Greenwich and Blackwall Railway, the property close to which had increased in value. . . . The arches were let out for infant-schools, and no annoyance was felt . . . from the passing of trains over their heads; no doubt the London and South Western Company would be able to appropriate their viaducts to similar purposes, and in course of time the direct promotion of 'national education' might be numbered among the great results of railway establishments."—*From "Practical Ethics" (Sturt & Hobling).*

Back to Steam ?

I envisage the time, perhaps 20 years hence, when the development of nuclear power will have produced an atomic fuel giving off a far less penetrating radiation than that at present experienced. If this comes about the steam locomotive may again sweep the board. With such a fuel, boilers will be cheaper to build and maintain, and all the heat generated by the fuel will go to heating the water in the boiler. Turbine rather than cylinders could be used to extract more of the energy from the steam; and there will be no need for a fireman.—*From a letter to the "Guardian."*



Photo]

[G. Crowther

Push-and-pull train entering Haworth Station, North Eastern Region

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Supply of Traction Equipment

As recorded in our issue of March 25, Associated Electrical Industries Limited is to supply electric traction equipment to the value of some £2,750,000 to South Africa. The order is for traction motors, control gear, and lighting and heating equipment, for installation in 113 motor coaches to be built for South African Railways by Union Carriage & Wagon Co. (Pty.) Ltd. to whom A.E.I. will be principal sub-contractors.

The motor coaches will operate at 3,000 V. d.c., and will be used to supplement and extend existing suburban and inter-urban services of the Cape Western and Reef sections of the line. They will multiple with the 105 coaches supplied to the Reef during 1957-59; the latter were A.E.I. equipped, and only minor changes will be made in the design of the new equipment.

Among interesting features of design is the ventilation of the main traction motors. The Reef coaches operate at an altitude of 6,000 ft., and to ensure adequate cooling of the motors they are not only self-ventilated, but are also fitted with axial-blow fans to provide additional cooling under heavy load conditions. Motors and motor-generator sets will be insulated for Class "H" temperature rises, and the additional ventilation will be of great benefit both in the operation of the motors and in ensuring long life of the insulation.

All high-voltage switchgear will be located in a pressurised cubicle in the

body of each coach. Filtered air is blown into the cubicle; this effectively excludes dirt and dust, giving greatly increased periods between overhauls and preventing tracking of the insulation. The complete cubicle can be removed through the side of the coach.

Resistances are mounted under the coaches, together with the motor-generator sets, compressors, exhausters, and brake equipments. The brakes are of the electro-vacuum type, similar to the electro-pneumatic system, but employing vacuum instead of pressure. The compressors are used only for control purposes and for operation of doors on the train.

INDIA

Consultant Services on Rolling Stock

The Indian railways, for nearly a century dependent on foreign consultants for technical advice, are now in a position themselves to function as technical consultants to manufacturers of rolling stock in India, and neighbouring foreign countries. The Railway Board has authorised its Research, Design & Standards Organisation (RDSO) to provide consultant services in respect of rolling stock to outside parties on request.

The consultant services to be provided by R.D.S.O. would cover special surveys and investigations on specific problems, preparation of specifications and tender documents for the procurement of locomotives and rolling stock, technical guidance on purchase, approval of drawings and inspection of locomotives and rolling stock ordered on indigenous or

foreign manufacturers. Some inquiries for providing its consultant services have already been received by R.D.S.O.

ARGENTINA

Railway Rehabilitation

The disastrous state of the Argentine Railways has long been the principal economic problem of the Government. It is obvious that strong measures must be taken immediately to prevent a total collapse; and to this end President Frondizi and his cabinet have held several meetings to arrive at a practical solution.

As regards finance, it has been found impossible to pay for even a minimum part of the replacement and purchasing programme, especially as the most recent increase in rates and fares has been practically absorbed by granting new benefits to the men. That being so, it is hoped to obtain a loan of U.S. \$30,000,000 through the World Bank and the Special Fund of the United Nations Organisation. The final arrangements are expected to be concluded by May, after full studies have been made by a mission of experts of these entities in collaboration with those of Argentina, so that the most urgent works and purchases may be put in hand straight away. Some financial assistance is also expected from the sale of surplus railway property.

BRAZIL

Progress of Electrification

The Marumbi Power Station, the property of the Parana Government, is scheduled for completion this year and will supply power for the Curitiba—Paranagua mountain section of the Parana—Sta. Catarina Railway, now being electrified. Two of the five substations have been completed.

Rede Mineira has completed the electrification of 14 miles of line between Minduri and Carrincus and 28 miles of the re-aligned Divinopolis—Costa Pinto section.

The Sorocabana Railway has inaugurated the electrified section between Iparó and Itapitininga (37 miles), and reduced operating costs from 5,000,000 to 600,000 cruzeiros. The São Paulo Government's programme of railway works provides for the electrification of a further 155 miles of the Sorocabana lines at an estimated cost, including passenger coaches, of 600,000,000 cruzeiros.

Railway Wage Disputes

The new year has been marked by several threatened railway strikes, which are gradually being averted by increasing wages and re-adjusting tariffs to cover the additional expenditure. In São Paulo the increase in freight and passenger charges on the Sorocabana, Mogiana and Paulista Railways has averaged 9.68, 10.06 and 9.84 per cent this year.



Recent Reef stock on the outskirts of Johannesburg, South African Railways, fitted with AEI Limited electrical equipment

During February employees of the Central Brazil Railway in Sao Paulo threatened to cease work in 20 days if their demands were not complied with in full and the Santos-Jundiaí staffs came out on strike, to which those of the Paulista Railway adhered. The Santos-Jundiaí employees insist on a 45 per cent wage increase and the incorporation in their salaries of the 30 per cent emergency bonus, together with other privileges.

Conditions on the Leopoldina Railway are still unsettled. The authorities point out that revenue amounted to 1,020 million cruzeiros in 1959 and expenditure to 3,720 million, 64 per cent being in respect of staff payments. To satisfy the workers' demands would swell expenditure by a further 1,320 million.

Demands for salary increases are common to all economic activities at the moment because of inflation and cruzeiro depreciation. Aggregate costs of living in the Federal District and Sao Paulo increased 14 and 15 per cent, respectively, in 1958 and by a further 39 per cent in 1959.

SWITZERLAND

Mixed Gauge in the Grisons

The only double-track section of the 243 route miles of the metre-gauge Rhaetian Railways is the four miles between Chur and Domat-Ems, on the main line to St. Moritz, the doubling being to facilitate the movement of freight to and from an industrial plant at Ems. Mixed gauge has since been laid on the left-hand track, to permit Swiss Federal locomotives and wagons to work

through to Ems, and thus to avoid transshipment at Chur or the use of special transporter wagons. The track will carry locomotives in weight up to the 120-ton Swiss Federal Ae4/7 (1-D-2) type, with a restriction in speed to 32 m.p.h. The signalling is so arranged that the mixed-gauge down line is operated as a single line when the standard-gauge freight trains are passing over it. Loads are limited to 40 axles, or 20 four-wheel wagons. The Swiss Federal Railways has contributed the major part of the cost of laying the third rail.

Regulating Train Running

A new system has recently been put into operation over certain main lines of the Swiss Federal Railways to improve timekeeping. It is the use of a palette, in the form of a white chevron, prominently displayed on a station platform, to advise the driver of an approaching train as to the speed he should maintain to avoid needless signal checks to his own or following trains. If the preceding train is running late, the palette is exhibited with the point of the chevron downwards, and the driver is thus advised to reduce his speed to maintain a headway that will keep signal checks to a minimum. If it is desired that a driver accelerate his running to avoid delay to a following train, the palette is displayed with the point of the chevron upwards.

This system has proved successful in working, and by reducing signal checks and stops tends towards economies in current consumption and wear and tear,

as well as to keeping the trains moving and to improved punctuality. As most of the signalling is done at installations on the station platforms, the exhibition of the palettes when required is a simple operation.

FRANCE

Success of Train Telephone Service

The telephone service in the Paris-Lille expresses is still very popular after several months' service, and despite a surcharge of about 2s. 6d. in addition to the ordinary charge for a call. The quality of reception and speed in obtaining numbers are stated to be satisfactory.

WESTERN GERMANY

Reduction in Railway Staff

Between April, 1958, and the end of last year, the staff of the Federal Railway was reduced by 32,000, of whom 20,000 were declared redundant in 1959.

PORTUGAL

Re-signalling on Setil-Vendas Line

New signalling is to be installed also on the Setil-Vendas line, which is not included in present electrification plans. It carries a heavy goods traffic to and from the industrial region of Sétúbal and is of great importance to the areas on both sides of the Tagus. Improvement of warning arrangements at level crossings also forms part of the programme.

Publications Received

Liverpool Overhead Railway, 1893-1956. By Charles E. Box. London: Railway World Limited, 245, Cricklewood Broadway, N.W.2. 9 in. x 5½ in. 189 pp. Illustrated. Price 25s.—The subject of this book was the only elevated railway in Great Britain, and the first in the world to be worked by electricity. The author is not only a railwayman, but also the son of a former General Manager of the L.O.R. He covers in considerable detail many more features of construction, power supply, rolling stock, signalling, policy, and traffic than are dealt with normally in a railway history. There are 12 chapters and five appendices, 84 photographic illustrations, and 28 maps, drawings, and diagrams.

British Railway History, 1877-1947. By C. Hamilton Ellis. London: George Allen & Unwin Limited, Ruskin House, 40, Museum Street, W.C.1. 9½ in. x 6½ in. 416 pp. Illustrated. Price 35s.—The author has achieved in two volumes a survey of the history of British railways from the accession of William IV in 1830 to nationalisation in 1947. The first volume (1830-1876) was published in 1954, and the second has been issued recently. The latter covers the 70 years 1877-1947, a long and complex period

which Mr. Hamilton Ellis summarises as the triumphant years, the proud years, and the years of re-examination. He states rightly that his is not a reference book, but a historical impression. As such it is outstanding for breadth, balance, and insight. Not everyone will agree with some of his interpretations of events, but they are always interesting, sometimes provocative, and often told with mordant humour. The expansion of the railway system is related in the atmosphere of railway politics, and not as a mere chronology of events. Noteworthy civil engineering feats, the personalities of outstanding men, mechanical development, labour relations, and the impact of the internal-combustion engine, are representative features of the story, and indicate its scope. The numerous illustrations constitute a well-selected and far from hackneyed collection of railway pictures. There is an 18-page index.

Trade Union Law. By Harry Samuels. Sixth edition. London: Stevens & Sons Ltd., P.O. Box 220, 11, New Fetter Lane, E.C.4. 8½ in. x 5½ in. 108 pp. Price 17s. 6d.—More than 13 years have passed since this valuable little book first appeared, and was reviewed in our issue of January 10, 1947. It was designed to present the essence of the law relating to

trade unions in as brief a compass as the subject would admit, and the success achieved is exemplified by the numerous impressions and editions. Since the fifth edition was published (in 1956), the Industrial Disputes Order (S.I. 1951, No. 1376) has been revoked, and replaced by section 8 of the Terms & Conditions of Employment Act, 1959, an enactment of far more limited scope in this respect. Besides the changes in the book necessitated by this alteration in the law, the present edition contains further paragraphs on collective agreements, strikes, restrictive practices, trade union rules, and so on.

Aluminium Casting Alloys.—A revised edition of the mounted data sheet for aluminium casting alloys for general engineering purposes has amendments concerned mainly with the related specifications section. These are the result of the revision of the British Standard "L" series of aircraft standards, and the transference of four D.T.D. specifications to the B.S. "L" series. One of these, the familiar D.T.D. 424A, will be known in future as B.S.L79. The B.S. 1490 "LM" numbers remain unchanged. Copies may be obtained free of charge from the Association of Light Alloy Refiners & Smelters Limited, 3, Albemarle Street, London, W.1.

Margam Marshalling Yard

Planned in co-operation with the Steel Company of Wales Limited, this hump yard is the first of its kind on the Western Region of British Railways

THE Western Region's new marshalling yard at Margam, which was officially opened by Mr. K. W. C. Grand, Member of the British Transport Commission, on April 11, 1960, breaks new ground in more ways than one. It is the most wholly-automatic yard so far introduced in this country: to achieve this result, advantage has been taken of the experience of similar British and American yards which have been built since the war. It is the first large hump yard equipped with retarder brakes to be built on the Region and, lastly, it has been planned in close co-operation with the Steel Company of Wales Limited, to avoid duplication of work in the railway and company sidings of both.

New Site

Margam yard has the advantage of having been laid out on an entirely new site, the acquisition of which presented little difficulty as it consisted largely of unused sand-dunes. An existing group of sidings is being adapted and equipped with a small "knuckle" to provide a secondary sorting yard for local traffic and to handle express freight trains.

The new yard is east of Port Talbot

near the eastern boundary of the Swansea operating district (Fig. 1). It is designed to accept main-line trains from the Cardiff direction and those which now use the Vale of Neath line to by-pass that town. It will also receive coal trains from the Tondur area via the Ogmore Valley Extension line, and from local works and goods stations in the immediate vicinity.

Two-Way Yard

Margam has been designed as a two-way yard which can receive and despatch traffic in each direction. It is estimated that it will handle approximately 4,000 wagons a day, but a considerable margin for expansion beyond this figure has been allowed.

Fifteen of the 50 marshalling sidings are allocated for traffic to the Steel Company of Wales works which lie immediately west of the yard. Seventeen of the remainder are allocated for various destinations in the Swansea district, six for Up-line destinations and the remaining 12 for various classes of empty wagons.

The yard has been specially designed, in conjunction with the Steel Company

of Wales, to cater for that company's requirements at the same time as traffic is segregated for other destinations. The 15 sidings allocated to this traffic will sort coal into nine different grades and separate scrap, empties, and miscellaneous traffic for three sections of the works.

There is direct access from the marshalling sidings into the works, and a direct line for outward traffic from the works sidings to the reception lines. Loaded and empty wagons can thus be removed direct from works to marshalling yard and, after passing over the hump, dispersed in Up or Down directions.

The construction of the new yard enables a group of dead-end sidings, known as Margam Down sidings, to be handed over to the Steel Company of Wales for its own purposes.

Design

The yard lies on the south side of the South Wales main line between Cardiff and Swansea (Fig. 2). At the eastern end are 12 reception lines, all of which are accessible from the east and five of which are accessible in both directions.

To the north of the reception lines:

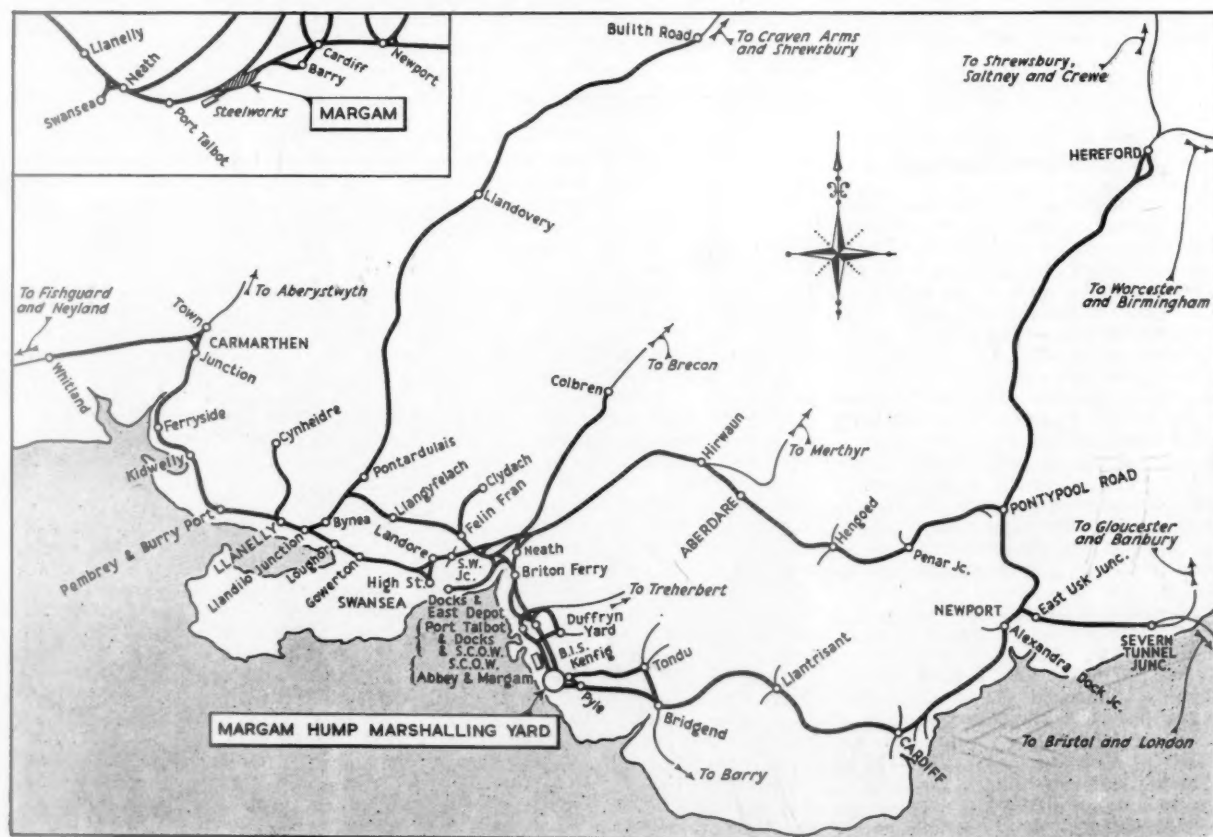


Fig. 1.—Map showing relationship of Margam Yard in South Wales area

an Up departure line allows trains to proceed eastward out of the yard, and an engine release line enables locomotives entering the receptions in the Up direction to return to the motive power depot or sidings at the west end of the yard.

In the middle of the reception lines is the hump engine return road. To the South, a down through-running line enables trains conveying bulk loads for the Steel Company of Wales Limited or working only at the west end of the yard to by-pass the hump.

Single Track over Hump

The 12 reception sidings converge to a single track over the hump, which has a vertical curvature of 11 ch. rad. The gradient falls sharply (1 in 18) toward the sorting sidings, reducing to 1 in 80 through the two 72-ft. primary and eight 36-ft. secondary retarders which serve a total of 50 marshalling sidings.

At the north end of the marshalling group is a line with direct access from hump to west end giving easy through passage for locomotives, and a siding for reverse movements. Ten single-end departure sidings, tranship sidings, and a small wagon repair yard are at the west end of the yard.

Leading from this end and the departure sidings are the lines giving access to the various groups of exchange sidings with the Steel Company of Wales Limited, and to the Abbey yard.

This yard, which is to be reconstructed as a secondary sorting yard, now comprises two separate groups of double-end sidings. It will be converted into one group, with a small hump at the eastern end, three reception sidings on the north side, and departure sidings on the south side.

These departure sidings may be used for traffic from either the secondary sorting sidings or from the main hump yard. They can also be used for drawing part-train loads from the hump yard which require to be made up to full loads in the secondary sorting yard.

Quick Exchange

The reception lines at Abbey Sidings have been designed to permit quick exchange of marshalled sections between express freight trains now calling to detach at small yards in the Swansea district. This facility will permit trains to make up with full loads to one or two destinations, thus saving time en route and reducing train-mileage.

A group of three double-end and two single-end sidings on the north side of the main line enables Up trains to change locomotives or train crews at this point. These sidings avoid the necessity of changing locomotives on Up trains at Cardiff and balance the working of locomotives terminating at Margam on Down trains.

The bridge carrying the Ogmore Valley Extension line over the main lines has been reconstructed as part of the overall scheme and will enable locomotives to be transferred between sidings on each side of the Up and Down main lines.

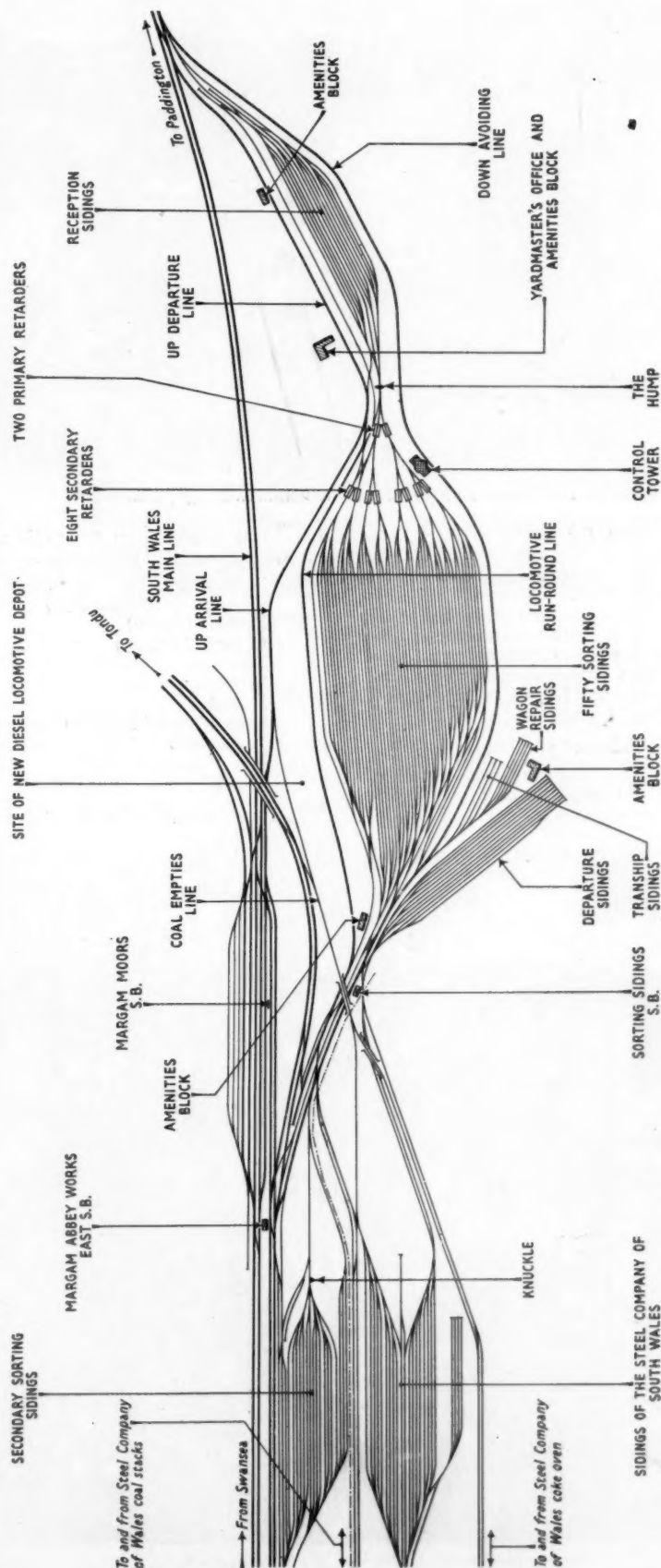


Fig. 2.—Plan of the marshalling yard, showing main line from Paddington to Swansea, Down avoiding line, and line leading to the Steel Company of Wales' coke ovens



Reception sidings in the new marshalling yard

The depot for servicing diesel locomotives is to be constructed on the north side of the west end of the marshalling yard.

The ground has been prepared for this depot as part of the yard scheme and the depot itself will be completed when diesel locomotives become available for general operation in the Region in the course of a few years' time.

Method of Working

When the final rearrangement of services has taken place, Margam yard will receive trains conveying traffic for

the Swansea district from the yards at the following points on the Region:—

Shrewsbury (Walcot)
Gloucester (Brookthorpe)
London (Acton)
Oxford (Hinksey)
Reading
Westbury
Bristol
Severn Tunnel Junction
Rogerstone
Newport
Cardiff

It will also accept trains direct from

the collieries in South Wales. In this connection, it is interesting to note that approximately one-third of the total number of wagons to be shunted at Margam will be from collieries west of Cardiff. This was one of the main factors which determined the siting of the yard at Margam, rather than at a point further east.

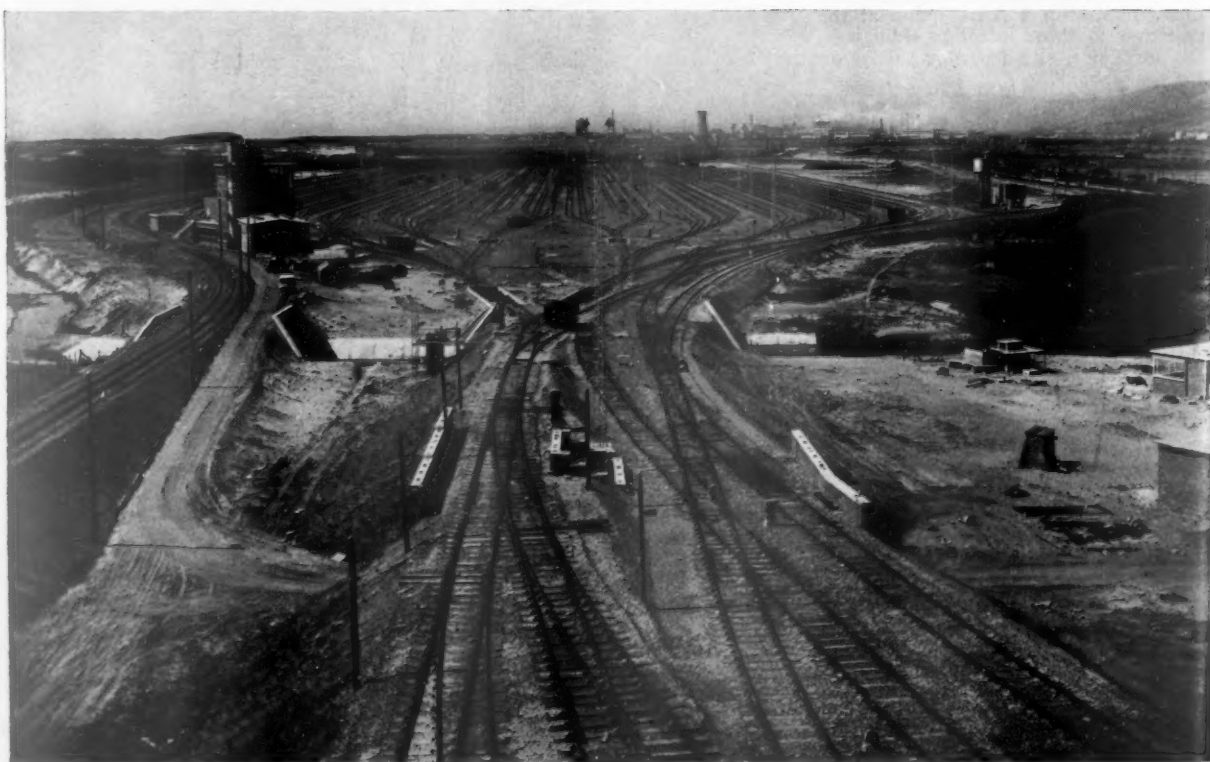
Alternative Routes

Trains from the east will arrive via the main line or over the Ogmore Valley Extension line (reversing at the west end of the yard) or via Aberdare and Neath approaching Margam in the Up direction. Traffic to be despatched to the east will arise either from the Steel Company of Wales Limited, or from other works in the immediate vicinity.

At present, there is no one yard in the Swansea district which could accept traffic unmarshalled. Because of this, all traffic, except that passing on the express freight trains, is staged into the yards at Severn Tunnel Junction, Pontypool Road, or Cardiff for detailed marshalling. From these yards it goes forward to the Swansea district, usually marshalled into two or more sections for detaching en route.

The acceptance of unmarshalled trains at Margam will avoid staging and subsequent delay to traffic and reduce work at the intermediate yards. The capacity which will be created at Severn Tunnel Junction will be used to undertake additional marshalling of Cardiff traffic.

The concentration of marshalling work at Margam will enable all traffic to be despatched thence either to destinations or to yards in the immediate vicinity of



Hump-retarder and marshalling sidings



Exterior view of control tower

destinations. This will reduce the work in a number of smaller yards in both Cardiff and Swansea districts and enable some of them to be closed.

The shunting previously undertaken in Margam Down sidings has been entirely taken over by the new hump yard so that these sidings can be handed over to the Steel Company of Wales Limited. Similarly, work previously done at Abbey sidings is being passed to the hump yard to enable the reconstruction of these sidings to take place.

The Down express freight trains already formed in marshalled sequence for the Swansea district will call at Abbey sidings when reconstruction is complete to exchange traffic in the manner already indicated.

The connections to and from the main line at the east end of the yard are controlled temporarily by a miniature control panel in Pyle West signal box, pending introduction of a central signalling scheme at Port Talbot.

Control Panel

A "Mosaic tile" panel on the top floor of the control tower controls all movements in and out of the reception sidings and points, signals, and retarders associated with humping operation.

The right-hand part of the panel controls the signalling of reception sidings up to the hump summit on the "entrance-exit" route-setting principle. Points may be worked individually if required for test purposes or for hand-signalled movements.

Running signals in the control panel area are of the multiple-aspect colour-light form, while subsidiary signals are position-light types, ground or elevated as appropriate.

Humping is controlled by a special elevated position-light signal with the

three indications, "Stop," "hump slow," and "hump normal." The indication is repeated in the cab of the hump engine, authority to propel only appearing in the locomotive standing on the reception line from which movement is to be made.

Points in the control panel area are worked by quick-operating electro-pneumatic cylinders fed by compressed air at 40 lb. per sq. in. These points can be thrown from one position to the other in half a second.

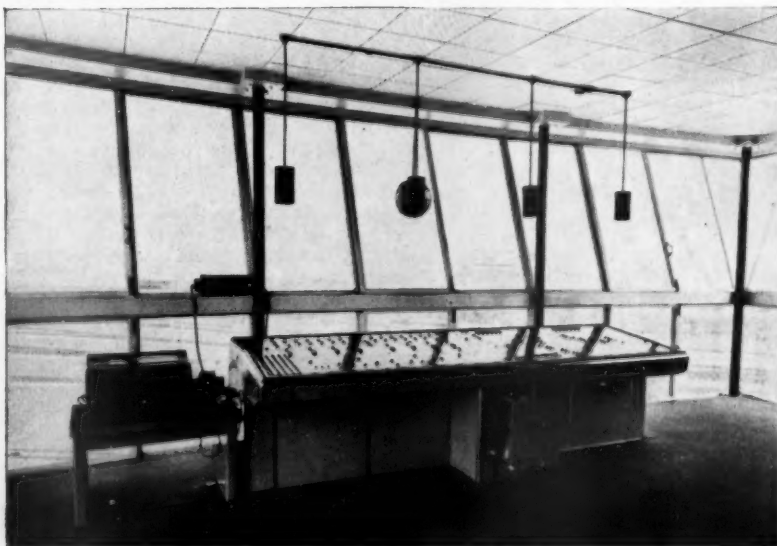
The whole of the switching area is track-circuited in connection with the automatic working of the points, and the reception sidings and connections are similarly track-circuited for orthodox signalling purposes.

The west end of the yard is controlled by a conventional signalbox. Semaphore signals and points at this end of the yard are lever-operated in the normal way but a panel with colour-light signalling will be provided in the box to control the junction with the Ogmore Valley Extension line and the entrance to Abbey sidings.

Levers to be Replaced

The lever frame is a temporary expedient; ultimately, the whole of the signals and points in the box will be converted to panel operation with colour-light signalling.

Control of the retarders and points giving access to the sorting sidings at the



Control panel in control tower illustrated above



Main amenity block

hump end is effected from the left-hand part of the panel.

Before beginning humping operations, the train is divided into "cuts" (i.e., one or more wagons for the same sorting siding). The destinations and order of these "cuts" are advised by the shunter on a lightweight portable radio transmitter to the traffic office on the ground floor of the control tower. Here, the information is typed on a teleprinter and reproduced in the operating room of the tower. A perforated tape is produced simultaneously in the traffic office giving the information in code form.

When humping is about to begin, the perforated tape is fed into a tape reader in the traffic office. The tape passes through the reader until destinations of the first four "cuts" have been read and translated into the electrical storage system.

Illuminated Figures on Panel

The destinations are displayed to the operator by illuminated figures appearing in four indicators on the control panel. As the train is pushed over the hump the illuminated figures automatically progress in accordance with the information on the tape. The panel operator can check these figures with the teleprinter record sheet. Switches on the panel enable him to intervene if he notes any discrepancy between illuminated figures and teleprinter record and to take emergency action.

The operator can also control the humping operations manually if automatic switching is not required. Two multi-position switches for each retarder provide manual control. With these switches, the operator can select automatic working, any one of five pre-set release speeds, leave the retarder open, or apply any degree of retardation.

Track Circuits

Points-setting for successive routes is governed by track circuits. A separate circuit for each set of points and intermediate circuits between points are required. Each circuit must be short enough to reduce to a minimum the space to be maintained between "cuts" but longer than the maximum wheelbase of any wagon to use the automatic point-setting system.

The principle of operation is that the train is propelled from the reception lines and then at low speed over the crest of the hump. The couplings having already been removed as necessary, the "cuts" now accelerate to a relatively

high speed to obtain sufficient spatial separation for the operation of intervening points. The height of the hump in relation to that of the sorting sidings is adequate to ensure that wagons with poor rolling characteristics will attain sufficient speed to travel down the longest siding or the siding causing the greatest energy-loss and arrive at the farthestmost end before coming to a halt. The "cut" entering a siding should run as far as the wagons already standing in that siding at a speed low enough to avoid damage to wagons or contents. At the same time, it should not stop short of wagons already present.

As the height of hump and falling gradient on the sorting side are fixed and the slowest moving wagons possess enough energy to take them to the farthest point, it is apparent that some retardation of the "cuts" is necessary for those wagons which accelerate most quickly or are required to run a lesser distance.

Margam hump yard is provided with automatic retardation equipment which gives a calculated amount of retardation to each "cut" so that wagons run up to those already standing in the siding and gently "buff."

Electronic Analogue Computer

The amount of retardation is calculated by an electronic analogue computer. Retardation is applied by two primary and eight secondary pneumatically operated retarders. The computer is fed with information about each "cut" to enable it to calculate the required amount of retardation. The computer needs to know certain characteristics of the wagon, for example, "rollability" and weight. It must also know the characteristics of the siding into which the "cut" is to be routed, such as curvature, gradient, and number of wagons already present.

There is a limit to the amount of retardation that can be applied before the pressure of the retarder beams squeeze the wheels upward. This limit depends on the weight of the wagon and whether the retarder beams and wagon wheels have been wetted by rain, heavy dew, or frost. A wet/dry switch is therefore provided on the control panel and its setting repeated to the computer. A wet track also reduces the energy-loss of wagons resulting from track curvature. A weather switch with a choice of three settings permits compensation for wind effects.

The velocity of the "cut" is measured

by a radar system employing the Doppler effect. From a radar head situated in the four-foot at each retarder, a constant-frequency signal is radiated in a beam along the track toward the approaching "cut." Part of the energy incident on the "cut" is reflected back and is received at the source.

The reflected signal suffers a frequency shift proportional to the velocity of the "cut." Electronic equipment mixes reflected and transmitted signals and a beat frequency is obtained which is a measure of the speed of the "cut."

This frequency is amplified and converted to a voltage proportional to the frequency of the input signal. Thus, a voltage analogue of the velocity of the "cut" as it approaches the retarder is obtained and fed to the computer.

The "rollability" of a wagon is also measured electronically, twice for each wagon "cut" that is humped. Measurements are made before reaching both the primary and secondary retarders.

Wheel-Detectors

For this purpose, four wheel-detectors are fitted in groups of two in the approach to the retarder. The speed of the "cut" is measured between the first group and again while it passes through the second group.

It is therefore possible for the computer to calculate the acceleration of the vehicles and from this the "rollability" factor. This is modified by the loading because of the change in ratio of linear to rotational energy (axles and wheels). Wagon weight is classified into light medium, heavy, or very heavy.

Each siding is equipped with a standage store which gives a measure of the number of wagons present and hence the distance that a wagon being humped should run.

The lengths of the various sidings are not equal, hence the maximum value of standage varies from siding to siding. The standage stores have sufficient capacity for the longest siding in the yard; those for shorter sidings are set to start from intermediate position.

Standage Stores coupled to Computer

The standage stores are coupled to the electronic computer and their output corresponds to the available capacity of the sidings; the output is correspondingly reduced as wagons are counted in, becoming zero when sidings are full.

The Panel Operator can re-set the store at any time to cover a siding which is

being emptied from the other end while humping is in progress or a "cut" which has stopped short of its destination.

A route relay for each retarder is provided for each siding fed by that retarder. When a "cut" reaches the retarder, the destination information from the route-setting store is used to operate the route relay corresponding to the destination of the "cut." When the relay is operated, information on the siding such as curvature and available standage is fed to the computer. The relay also couples the wheel-counting detector, which is mounted just beyond the retarder, to the standage store for the siding concerned.

When the computer has calculated the speed at which the wagon should be released from the retarder, a control servo mechanism responds to signals representing this speed and actual wagon speed and operates to reduce the difference to zero.

Two-way radio-telephone communication is maintained between shunting locomotives in the yard and the control tower or sorting sidings inspector.

A one-way portable radio transmitter enables the shunter-tallyman in the reception sidings to speak to the traffic office and advise destinations of "cuts."

Two-way loudspeaker communication

is provided between control tower, reception sidings, and east end of the sorting sidings and between Margam sorting sidings signalbox and sorting sidings (west end).

Microphones for ground staff are fixed to convenient lighting towers.

There are telephones at all main points. Teleprinter communication operates between the Traffic Office (control tower) and the

Operating room
Sorting sidings inspector
Steel Company of Wales checker
Swansea (High Street) Control Office
Swansea (High Street) Telegraph Office.

Telephone communication within the yard is provided by a 60-line automatic exchange.

Civil Engineering

The yard comprises over 33 miles of plain line and 240 fittings, occupying an area of 170 acres. The subsoil in the area consists of sand and peat to a considerable depth and earthwork requirements were mostly for filling. By levelling off existing irregularities and excavating from a near-by pit, these were carried out most economically. In all, about $\frac{1}{2}$ million cu. yd. of sand were moved, using seven

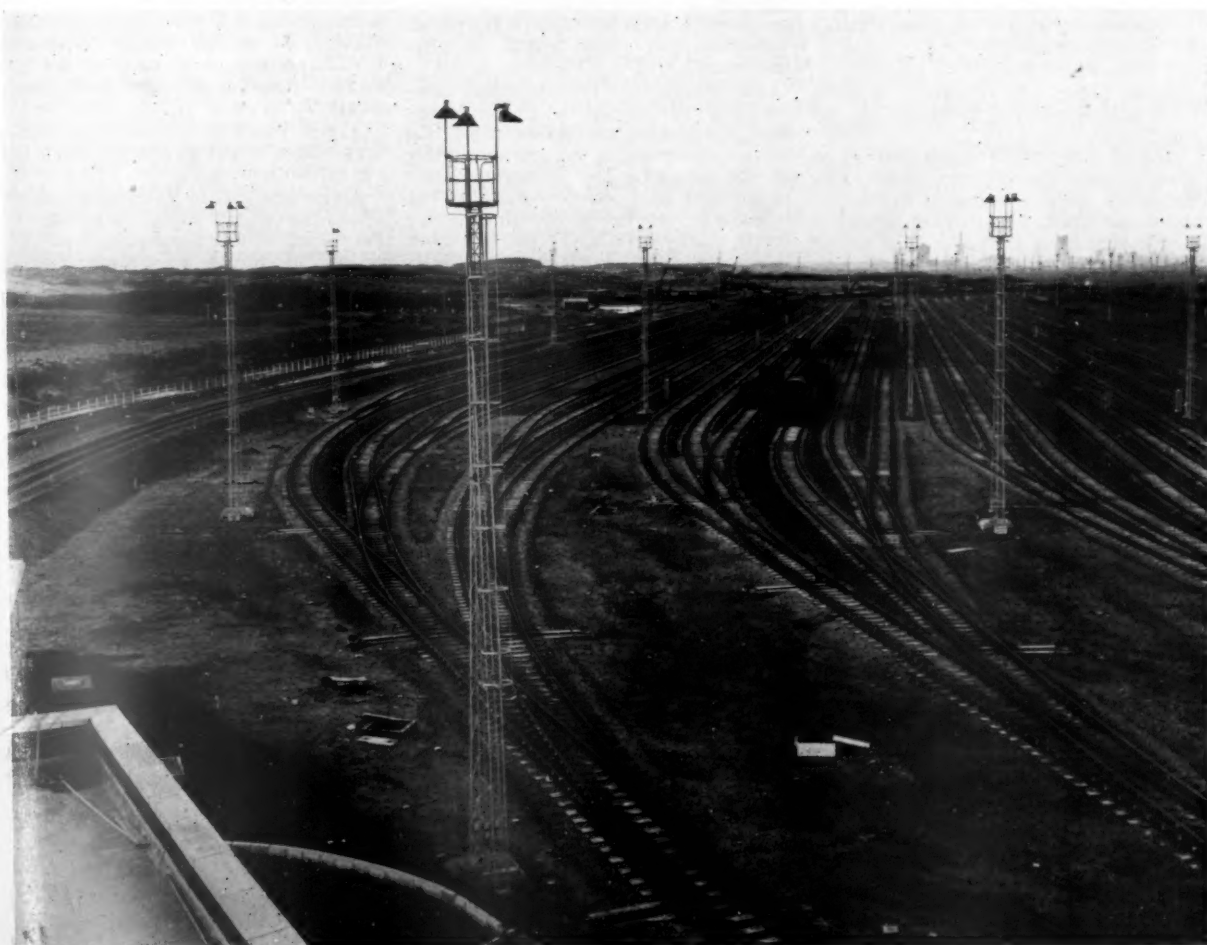
diesel tractors and scrapers.

The River Kenfig meandered across the site and a diversion was carried out in two straight cuts, one each side of the yard. These were linked up under the tracks of the hump area by two reinforced concrete box culverts. Originally, the river water was impounded on the upstream side of the yard by a weir. The diversion necessitated the replacement of this weir by another on the downstream side of the yard. This is a temporary structure which will serve until an automatic weir is installed.

To gain the required length for the yard, turnout fittings were positioned on the Paddington side of the existing two-track Water Street bridge. This necessitated reconstruction to a four-track bridge.

As the Highway Authority had plans for a future trunk road by-passing Pyle the bridge was built on a new alignment and the road widened, the Highway Authority contributing towards the cost. One abutment has been built in the form of a centre pier to allow for future widening.

The reception lines are almost level to avoid the necessity for securing the brakes on incoming trains. The retarders are set in fully-drained concrete pits and mounted on timber frames. All track joints in the yard, with the excep-



General view of yard, which is lit from two types of tubular steel towers

tion of insulated joints, have been site-welded by the "Thermit" or German "Quick" process.

A flyover bridge was also required to carry the lines from the Steel Company of Wales' sidings over the departure lines from the yard to the reception area. The bridge carrying the Ogmore Valley Extension over the main line was also widened and reconstructed alongside the old bridge, which was demolished. The new structure is a 110-ft. span bridge on pile foundations with welded girders and prefabricated deck units.

Three Foundations

The control tower sited adjacent to the hump is founded on three separate reinforced concrete raft foundations with perimeter beams, each raft separated by an expansion joint to allow for differential settlement. The building itself is also constructed in three parts, as described below.

1. Control Tower

Ground floor—main entrance lobby, offices, workshops and staircase

First floor—relay and battery rooms

Second floor—air-conditioning rooms

Third floor—control room and ancillary accommodation

A lift giving access to all floors is incorporated in this building.

2. Compressor Room Wing

Single-storey wing housing compressors and standby generators

3. Relay Room Wing

Boiler room and offices on ground floor and relay and battery rooms on first floor.

The superstructure comprises three separate reinforced concrete frames with brickwork cladding except at the rear of the tower where the staircase, which is cantilevered from the reinforced concrete liftshaft, is enclosed by a glass curtain wall secured to a steel framework.

Six amenity blocks are spaced out over the yard. The main block is placed near the hump containing offices for the Yardmaster and his staff and stores accommodation at ground-floor level. Above, is a fully-equipped kitchen and messroom. The building has a reinforced concrete framework with brickwork cladding to match the control tower.

Road access to the site has been provided from the Port Talbot—Porthcawl end of the yard and the new tarmac road links the main amenity blocks with the control tower, passing under the hump summit.

Marram grass will be planted on a bare dune outside the yard boundaries to prevent the penetration of wind-blown sand.

Electrical Engineering

The electrical installation consists of lighting, heating, signalling equipment, electrically-driven air compressors, and other power equipment. Together, this represents an installed load of approximately 700 kW.

The incoming supply, which is taken from the Steel Company of Wales 11,000 V. 50-cycle network is fed into two substations, one of 600 kVA.

capacity adjacent to the control tower, and the other with a capacity of 400 kVA, which is incorporated in the structure of Block "B" building. A 250 kVA. (at 0.8 power factor) diesel-electric generating set in the control tower building provides a standby supply in the event of mains failure feeds essential signalling circuits, the air compressors supplying the retarders, and a limited amount of the floodlighting, the control of relevant circuits being segregated for this purpose.

The standby generating set consists of a Mark 8 R.P.H. "Ruston/Paxman" V-form diesel engine, capable of developing 366 b.h.p. at 1,500 r.p.m., directly coupled to a 250 kVA. 1,500 r.p.m. Metropolitan-Vickers generator suitable for a 415 V. three-phase 50-cycle supply.

The standby generator is arranged to start automatically and take over the load if mains power fails or its voltage drops by more than 10 per cent. Audible and visual alarms are equipped on the control panel to give warning and indication of power failure and to show when the standby supply is in use.

Compressor Plant

The compressor plant comprises three electrically-driven compressors each capable of delivering 300 cu. ft. of free air per min. at 100 lb. per sq. in. The low-pressure air system for electro-pneumatic point operation is fed at 40 lb. per sq. in. from the high-pressure system through a reducing valve.

The compressors are controlled automatically by pressure switches. Under normal operating conditions, either one or two compressors will run depending on the demand. The third compressor is intended as a stand-by machine but will come into use if the air pressure drops to an exceptionally low value. A switch is provided to enable the machines in work and on standby to be varied in rotation.

The total electrical loading represented by the lighting installation of the yard and its grounds is approximately 300 kW. Included in this figure are 216 1,000-W. "Duoflux" lighting fittings manufactured by the Benjamin Electric Company. These are used to floodlight the working areas of the yard proper.

These floodlighting fittings are mounted at 55 ft. above ground level on 99 tubular steel towers manufactured by Tubewrights Limited, and are of following types:—

- (1) 63 towers on triangular bases with 2-ft. 6-in. sides, for those positions where sufficient clearance is available.
- (2) 36 towers on 1-ft. 6-in. square bases where space between tracks is severely restricted.

The square towers were specially designed for the yard, as were the top platforms for all the towers. These platforms are provided with vertical tubes on which are mounted the lighting fittings. They can be rotated by the removal of a taper pin and the lighting fittings swung round over the platform for cleaning and lamp replacement.

All the steel floodlighting towers are finished galvanised with two coats of aluminium paint, special regard to the

finish having been paid in view of the prevailing site conditions of strong sand-laden winds and the possibility of rapid erosion of paintwork. Each tower is mounted on a 6-ft.-cube concrete base designed to suit the load-bearing characteristics of Margam sand.

Additional to the steel towers approximately 100 standards provide lighting for the various access roadways and secondary parts of the yard.

Console Control

Main lighting is controlled from two consoles of the type used for aerodrome runway lighting. Each has a diagrammatic representation of the layout of the lighting points it controls, together with miniature lights to indicate the correct working of relevant circuits, including those covered by the standby set.

Each console is connected to a contactor panel by a multi-core P.V.C.-insulated wire-armoured and P.V.C.-sheathed cable. One of the consoles is on the control tower operating floor and is designed to match the signal control panel. The other is in the sorting sidings signalbox at the west end of the yard.

With minor exceptions, underground cable has been used to feed the yard lighting installation and various buildings. A departure has been made from normal Western Region practice in that P.V.C.-insulated single-wire armoured P.V.C.-sheathed cable has been used to simplify jointing and subsequent maintenance.

The various amenities and staff buildings obtain electricity supply from the two substations.

An installation of 110-V. socket outlets allows the use of "Kango" hammers by the Chief Civil Engineer's staff for maintaining tracks in the vicinity of the retarders.

The technical officers responsible for the design and construction of the yard were Mr. M. G. R. Smith, M.I.C.E., Chief Civil Engineer, Western Region; Mr. R. A. Smeddle, M.I.Mech.E., M.I. Loco.E., Chief Mechanical & Electrical Engineer, Western Region, and Mr. A. A. Cardani, A.M.I.E.E., M.I.R.S.E., Signal Engineer, Western Region.

List of Contractors

Sir Robert McAlpine (South Wales) Limited	Main civil engineering contractors — earthworks, permanent way, bridge-works, drainage, fencing, amenity blocks and signal box
John Morgan Limited ...	Control tower
Robert M. Douglas Limited ...	Earthworks and permanent way
British Insulated Callenders Cables Limited...	Main electrical contractor
Lee Beesley & Co. Ltd.	Internal electrical installation in control tower and yard buildings
Metropolitan - Vickers - G.R.S. Limited ...	Signalling equipment and retarders
Pye Telecommunications Limited ...	Wireless equipment
Reliance Telephone Co. Ltd. ...	Automatic telephone exchange
British Insulated Callenders Construction Co. Ltd. ...	Signalling cables

Flood Precautions and Repairs in India

Measures taken at recent Tapi River floods, Western Railway

By T. R. Vacha

Engineer-in-Chief, North-East Frontier Railway



Entire embankment of a 260-ft. section washed away on Udhna-Surat-Sayan section of Bombay-Delhi broad-gauge main line. The bridge on the right would normally have passed all monsoon flood water

OF the various sections of the 6,000-route-mile Western Railway those in the State of Bombay are subject to the heaviest rainfall averaging 100 in. annually. Other sections with lighter rainfall are affected by cyclones and sudden river spates.

This railway crosses many large and innumerable smaller rivers and streams by some 10,000 bridges with waterways of from 10 ft. to nearly a mile in width. During the South-West Monsoon period, from June until the end of October, the lines are patrolled at night. Furthermore, during exceptionally heavy and prolonged rain either by day or night, and in the event of severe storm in the normally-dry season likely to cause obstruction or damage, special patrols are organised by permanent way gangers. Lengths of line known to be vulnerable or to have given trouble in the past receive special attention.

Warning of Danger

Reports of such patrolling are regularly communicated to neighbouring stations, where the stationmasters keep checks on the movements of trains and, if warning of danger on the line is received, they do not permit the relevant trains to proceed. In the event of a train being caught between stations it is stopped by the display of appropriate signals by the patrolmen. Many serious accidents have been averted by the vigilance of the permanent way men, the prompt action of station staffs, and the alertness of locomotive drivers.

Rivers in the Plains of India

Rivers flowing through alluvial plains do not as a rule flow centrally through bridge openings with uniform cross-sections unless forced to do so by training works. As their catchment areas may be several thousand square miles in extent their normal flow is greatly increased during floods. The slope of their beds may vary from 3 ft. near the hills to 3 in.

per mile near their mouths, and their cross-section of flow may vary greatly as between the dry season and in flood-time. In fact, the widths of ordinary rivers may seasonally vary from 100 ft. to 4,000 ft., and those of large rivers from $\frac{1}{2}$ mile to 12 miles. The discharge also may be only a few hundred cusecs in the cold weather or dry season, whereas in flood it may be from 100,000 to 2,000,000 cusecs.

Channels in Meandering Rivers

Such rivers always meander or swing from side to side between the high banks forming the limits confining their lateral movements. Where sharp bends or loops occur the main channel sometimes cuts across the bend at its neck, thus shortening the river length and increasing the

gradient of the bed. This causes considerable disturbance for several miles up- and down-stream, which settles down only after two or three flood-seasons. Such cuts or cut-offs are liable to wash away the unprotected abutments of bridges and embankments from under the track.

It is this scour that causes the greatest concern to construction and maintenance engineers in the design of training and protection works. Scour may be caused by the normal flow of the current, by deflected currents, or by back-wash or whirlpools.

Tapi River Flood in 1959

The double-track 5-ft. 6-in. gauge main line of the Western Railway crosses the Tapi (Tapti) River between Udhna and



A small breach between Udhna and Surat, showing rails festooned across a deeply-scoured gap

Surat about 160 miles north of Bombay, and 80 south of Baroda. In September, 1959, the river came down in unprecedented flood causing extensive damage to the railway over a length of some 12 miles between Udhna and Sayan; such a flood had not been known within the past 100 years.

Sudden Rise of River

During the night of September 16 the river began to rise, and within a few hours had breached the embankments and carried away the tracks, signal rodding, signalboxes, telegraph and telephone poles. The water surged 4 ft. over the original formation and at the Tapi bridge flowed through the 10 spans, each of about 200 ft. in length, with a velocity of 25 ft. per sec. and with an afflux of 8 ft.

of track had been washed off the formation, embankments were carried away, and deep scour holes were formed below natural ground level. At one point there was a gap 300 ft. long and 35 ft. deep. Embankments on the remaining eight miles were softened and the ballast was loosened. The station yards at Udhna and Sayan were unrecognisable.

Hundreds of thousands of cu. ft. of earth, ashes, sand, rubble and ballast were loaded into wagons at places all over the railway, some nearly 400 miles distant, and trains were marshalled and held ready to transport them to the breaches.

Administrative Problem

The collection and feeding of labour was difficult; staff had to be brought from almost all divisions of the railway.

organisations of the railway had their hands full in feeding, housing and providing sanitary arrangements for the large labour force. The ever-present possibility of epidemics had to be fought by the doctors by the continuous enforcement of inoculation and the disinfection of every suspected place.

Local arrangements had also to be made for coaling and manning the locomotives isolated at different stations. Mechanical engineers were on the spot to supervise these matters and insure that no interruption occurred in the movement of the material trains beyond and through the flood-affected area. Officers and staff of the Signal Department were also kept busy installing and working the improvised telephone and wireless systems; continuous communications between staff at the breaches and the rest of the railway had to be insured. Moreover, stations entirely depleted of all signalling and interlocking equipment had to be re-equipped in a minimum of time. To expedite traffic a flag-station or halt had to be converted into an interlocked station.

Restoration of Single Line

All these various works to complete the construction and equipment of a single line were carried out in the shortest possible time, and it was opened for traffic on October 2 by, the then, General Manager, Mr. M. M. Khan, 16 days after the floods rose. There remained the 300-ft. gap to be closed with permanent materials to form a bank, the rebuilding of some bridges washed away, repair of others, and the widening necessary to accommodate the second track. With fresh labour and reinforced supervisory staff the closure of the breach and restoration of the second track were completed for the passage of normal traffic at restricted speed by October 26. It was expected that the bridge repairs and the removal of the speed restrictions would be possible within two months.



Temporary arrangements made with girders and cribs to bridge the 300-ft. gap for single-line working. The second track is seen hanging in the background

The engineers on the spot, whose lives were endangered, were unable to communicate the extent of the damage either to one another or to headquarters due to the total interruption of communications.

When the Chief Engineer, Mr. C. L. Kapur, reached the area the floods were at their height. To cross the swirling torrent from Udhna and reach Surat many efforts were made by push trolley, raft and boat, all for some time unsuccessfully. The only helicopter flying over the stricken area, could not carry the Chief Engineer to reconnoitre it, as it was fully engaged in dropping food and other supplies. Eventually after several hours it was found possible to get through by trolley and boat and obtain some idea of the extent of the damage.

Restoration Measures

This enabled a plan of restoration to be worked out on the spot and communicated by field and wireless telephone to headquarters in Bombay and to the Divisions beyond Baroda. Four miles

Some 3,000 men worked round the clock to rebuild embankments and lay the track. With both tracks cut off at half a dozen places conveyance of materials was extremely difficult.

In places the reconstructed track was pushed out on temporary timber sleeper cribs to enable wagons of stone, ashes and earth to be propelled forward by locomotives and to be unloaded by side discharge. At the 300-ft. breach high timber and steel trestles were constructed on foundations of boulders to carry steel spans for the restoration of single-line traffic. Cyclonic rains continued day and night, causing the flood level to remain high, thus hindering progress. With neighbouring station yards washed away only a single line was available for working out materials and returning empty trains.

A further handicap was imposed upon those carrying out the repairs by the public, some desperately trying to cross the gaps, others merely onlookers. The railway security force had to enforce law and order on railway land. Meanwhile the medical and commercial

WESTERN REGION CAR TOURIST SERVICES TO DEVON AND CORNWALL.—Because of the popularity of its car tourist services, which enable motorists to avoid long road journeys between London and holiday areas in the West, British Railways, Western Region, has resumed them this season. The services are between Paddington and Newton Abbot in Devon and St. Austell in Cornwall. Both terminals in the West are convenient centres for motoring holidays. Trains are running each weekday from until October 8 inclusive, except Good Friday and Easter Monday. Motorcars are conveyed overnight in specially fitted covered vans. Motorists and their passengers travel from Paddington by selected day trains, or, if preferred, by overnight sleeping-car train to St. Austell. Return charges between Paddington and Newton Abbot for car and driver are £11 10s. first and £9 17s. 6d. second class; the return fare for each additional adult passenger is £5 8s. first and £3 12s. second class. The return rates from Paddington to St. Austell for a car and driver are £14 5s. first and £11 15s. second class, and the return fare for each additional adult passenger is £7 6s. first and £4 18s. second class. Special reduced second-class charges are available for mid-week travel.

RAILWAY NEWS SECTION

PERSONAL

Mr. P. K. Madhava Menon, Divisional Superintendent, Vijayawada, Eastern Railway of India, has been appointed Chief Commercial Superintendent.

Sir Ivan A. R. Stedeford, K.B.E., Chairman & Managing Director of Tube Investments Limited, who, as recorded in our April 8 issue, has been appointed Chairman of the newly created planning board which is to

having previously been a member of the Beveridge Committee; he is a member of the board of the Commonwealth Development Finance Co. Ltd. and was a part-time member of the United Kingdom Atomic Energy Authority. In addition, he is a Director of the National Provincial Bank.

We regret to record the death, in Buenos Aires, at the age of 70, of Mr. Stanley Edward Warner, former Traffic Manager of the Central Argentine Railway.

Mr. U. G. K. Rao, Divisional Superintendent, Sealdah Division, Eastern Railway of India, has been appointed Chief Engineer. He succeeds Mr. S. N. Wadhwa, who has been transferred to the South Eastern Railway.

Mr. Christopher Frank Kearton, O.B.E., Joint Managing Director of Courtaulds Limited, who, as recorded in our April 8 issue has been appointed a member of newly-created transport planning board, was born



Sir Ivan A. R. Stedeford

Appointed Chairman of the Transport Planning Board



Mr. C. F. Kearton

Appointed a Member of the Transport Planning Board

advise the British Transport Commission and the Minister of Transport on the use of the Commission's assets and the planning of the railway system, was educated at Shebbear School, Devon. At the age of 17, he became an apprenticed pupil with the Vickers Group, completing a full five-year practical course in mechanical engineering. During the 1914-18 war he volunteered for the Royal Naval Air Service, ultimately gaining a commission as an Observation Officer. Some time after demobilisation, he established his own business in Birmingham in the automobile trade. In 1928 he became Sales Director of Tubes Limited, a founder-member of Tube Investments Limited. Three years later he was appointed Joint Managing Director of Tubes Limited; two years after that he was elected to the board of the parent company, Tube Investments Limited. He became Managing Director in 1939 and, while retaining the Managing Directorship, was elected Chairman in 1944. He was created a K.B.E. in 1954. He was, until recently, a Governor of the B.B.C.,

Mr. O. F. Gingell, an Assistant Secretary, Ministry of Transport, has been appointed Secretary to the newly created transport planning board.

Mr. R. H. Brooks, Assistant Secretary, Red & White Services Limited, has been appointed Secretary of the company.

Mr. W. G. Dadswell, Chief Clerk to the European Freight Manager, Canadian National Railways, has been appointed District Freight & City Passenger Agent, London City Office.

Mr. L. D. Johnson, Assistant District Commercial Superintendent (General), Middlesbrough, North Eastern Region, British Railways, has been appointed Assistant District Commercial Superintendent (Sales), Middlesbrough. Mr. R. W. Saunders, Chief Clerk, Cartage & Terminals Section, Traffic Headquarters, York, becomes Assistant District Commercial Superintendent (General), Middlesbrough.

at Whitchurch, Bucks, in 1911. Mr. Kearton joined Imperial Chemical Industries Limited, in 1933, in the Research Department. In 1946 he joined Courtaulds Limited as Head of the Chemical Engineering Department. He joined the board in 1952, and was made a Managing Director in 1957. He is on the boards of a number of companies in the Group; Deputy Chairman & Senior Managing Director of British Celanese Limited; Chairman of Gossards Limited, and Chairman or Director of a number of other subsidiary companies. Mr. Kearton is a part-time Member of the United Kingdom Atomic Energy Authority, and Chairman of the Electricity Supply Research Council. He is also Chairman of the Marketing Division of Courtaulds Limited, and in this capacity he opened the recent exhibition Courtaulds in Transport.

Mr. E. J. Brown, Chief Engineer, Chicago, Burlington & Quincy Railroad, has been elected President of the American Railway Engineering Association.

Mr. A. H. Moncrieffe, Assistant to the Commercial Officer (Sales), York, North Eastern Region, British Railways, has been appointed Assistant to the Commercial Officer (Passenger).

Dr. Richard Beeching A.R.C.S., B.Sc. F. Inst. P., C.I. Mech. E., who, as recorded in our April 8 issue, has been appointed a member of the newly created transport planning board, has been Technical Director on the main board of Imperial Chemical Industries Limited for the past two years. Since 1959 has been responsible for development. He joined the company in 1948 with distinguished scientific qualifications after service with the Imperial College of Science

Limited and the Union Whaling Co. Ltd., and Wire Industries Steel Products & Engineering Co. Ltd. Mr. Benson was elected a member of Council of the Institute of Chartered Accountants in 1956.

Mr. Walter Owen, Senior Executive Assistant, in the Signal Engineer's Department, London Transport Executive, who has been elected President of the Institution of Railway Signal Engineers for 1960-61, assumed that office on April 6. Mr. Owen joined the Signal Engineer's Department of the London Underground Railways in 1923. Following several years of experience of both maintenance and construction work, he became a member of the Administrative

paper on "Special signalling for temporary speed restrictions," which he read in 1952, he received the second prize. Mr. Owen was elected Vice-President of the Institution in 1958 and Senior Vice-President in 1959.

Mr. I. G. Carson, Assistant, General Manager's Office, Western Region, British Railways, has been appointed Assistant to the General Manager (Works). Mr. H. C. B. Hill, Head of the Works Modernisation Sub-section, Works Section, General Manager's Office, becomes Assistant (Traffic Planning).

Mr. N. C. Watney has been appointed Production Controller, Tata Engineering &



Dr. Richard Beeching

Appointed a Member of the Transport Planning Board



Mr. W. Owen

Elected President of the Institution of Railway Signal Engineers, 1960-61

& Technology, the Fuel Research Station and the Armament Design Department. In 1953 he went to Canada with special responsibility for the development of Terylene in that country. Before his appointment to the main board in 1957, Dr. Beeching served for two years as Chairman of I.C.I. Metals Division.

Mr. Henry Alexander Benson, C.B.E., F.C.A., Partner, Cooper Brothers & Company, who as recorded in our April 8 issue, has been appointed a member of the newly created transport planning board, was born in 1909, and educated at Johannesburg, South Africa. He was articled to Cooper Brothers & Company in 1926 and became a Partner in that firm in 1934. He has been a member of a number of Government committees, and is a Director of a number of companies including the Hudson's Bay Company, of which he is Deputy Governor. Other companies of which he is a Director include the Finance Corporation for Industry Limited, the Second Nassau Corporation

staff in 1936. In 1950 he was appointed a Senior Executive Assistant, and has since been in charge of the indoor technical staff engaged on annual signalling modernisation projects. Mr. Owen has been associated with many of the projects introduced by Mr. Dell, Signal Engineer, London Transport Executive, including push button control of signalling and automatic junction working. During the 1939-45 war, Mr. Owen carried out special duties at the wartime headquarters of the Chief Civil Engineer's Department. His experience of staff training includes lecturing courses at the London Transport Signalling School and the training of Technical Trainees. Mr. Owen joined the Institution of Railway Signal Engineers in 1938, becoming a full member in 1950. He has been a Member of the Council since 1949, and was the Hon. Secretary of the Organising Committee from 1949 to 1958. He was awarded the Institution's first prize for his paper entitled "Speed-control signalling for close headway working," which he read in 1949. For his

Locomotive Works, India. He was at one time Works Manager there, but has since been on the staff of Messrs. Sandberg, Consulting Engineers, London.

Mr. Claus Folke Lindskog has been appointed an Additional Director of the Skefko Ball Bearing Co. Ltd.

INSTITUTION OF RAILWAY SIGNAL ENGINEERS

At the recent annual general meeting of the Institution of Railway Signal Engineers the following Members of Council for 1960 were elected, in addition to Mr. W. Owen, as President:—

Vice-President

Mr. R. A. Green.

Members of Council (Member Class)

Messrs. A. A. Cardini, J. P. Coley, J. S. S. Davis, H. W. Hadaway and A. F. Wigram.

Members of Council (Associate Member Class)

Messrs. B. H. Grouse, M. Le Soeur and A. E. Williams.



Mr. J. G. Norton

Assistant Regional Establishment & Staff Officer, Euston, L.M. Region, 1955-60

Mr. J. G. Norton, Assistant Regional Establishment & Staff Officer, Euston, London Midland Region, British Railways, who, as recorded in our March 11 issue has retired, was educated at Kilburn Grammar School. Mr. Norton joined the former London & North Western Railway as an apprentice clerk in 1915, and, after service in the Audit Department, was transferred to the Office of the General Manager in the same year. During the 1914-18 war he served in Palestine and France, and, after returning to the General Manager's Office, L.N.W.R., in 1919, continued in the General Manager's Office, L.M.S.R., after amalgamation. In 1926, Mr. Norton joined the Labour & Establishment Department. For a period before the 1939-45 war he served on sub-committees of the Railway Staff Conference, and, on the outbreak of the war was transferred to the Conference as Assistant Secretary. He was appointed Secretary of the Conference in 1947, becoming also Secretary of the R.E.C. Staff Committee, the Special Joint Committee on Machinery of Negotiation for Railway Staff and the Railway Staff National Council, also Secretary of the Employers' Side of the Railway Shopmen's National Council, the National Railway Electrical Council, the Railway Workshop Supervisory Staff National Council and the Railway Police Central Conference. In 1948 he became Chief Personnel Officer to the Hotels Executive. He was appointed Assistant (Salaried Staff), Office of the Regional Staff Officer, London Midland Region in 1952, and in 1955 became Assistant Regional Establishment & Staff Officer, Euston. Mr. Norton was Vice-Commodore (Senior Flag Officer) of the British Transport Yachting Club, London Division, until his retirement. He has been Chairman of British Railways (London Midland Region) Lecture & Debating Society (Headquarters) since its inception in 1957. In 1954 he was admitted to the Order of St. John of Jerusalem as a Serving Brother. He has had 16 years active service with the Ambulance Movement.

Mr. W. F. Cartwright is to become President of the Iron & Steel Institute in succession to Mr. William Barr on May 3. Mr. Cartwright was Assistant Managing Director & General Manager, Steel Company of Wales Limited. He has been a member of the Institute since 1936, and became a Vice-President in 1955.

Mr. Brian Rowe, Chief Engineer, Aden Port Trust has been elected a member of the Institution of Civil Engineers.

Mr. Lawrence Sutton has been appointed Education Officer to the Institution of Works Managers. He was formerly Director of Studies at Ashridge College.

Mr. R. P. Janion has been appointed Sales Engineer of the Switchgear Division, Witton Works, General Electric Co. Ltd., responsible for switchgear for voltages of 3.3 kV. and above.

Mr. Morris W. Timberlake has been appointed Northern Area Sales Engineer, Bryce Berger Limited. He will succeed Mr. J. R. Vallance who has left the company's service.

Mr. Aubrey Jones, has joined the board of Guest Keen Iron & Steel Co. Ltd., and will also act in an advisory capacity to the Guest, Keen & Nettlefolds Group on economic affairs.

Mr. T. D. H. Andrews, Director & General Manager, Dowty Nucleonics Limited, has been appointed Managing Director. Mr. D. G. A. Thomas, Chief Engineer, has been appointed a Director of the company.

Mr. C. G. Hickling has been appointed Manager, Middlesbrough Branch, British Insulated Callender's Cables Limited. He succeeds Mr. G. W. Wheaton who has taken up an appointment at the company's Prescot works.

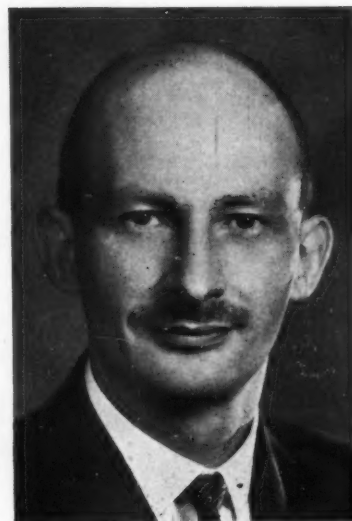
Mr. J. R. Cotterill has been appointed Manager, Outside Services Department, Witton Works, General Electric Co. Ltd. This is a new department formed to co-ordinate erection, commissioning, and service after commissioning of electrical plant.

Mr. John O. Sewell has been appointed General Manager, British Materials Handling Division and British Lock & Hardware Division, Yale & Towne Manufacturing Company. He succeeds the late Mr. H. Gilbert Ramsell.

Mr. F. V. Pipe, Managing Director, Newton Bros. (Derby) Ltd., has retired after 42 years with the company. He has been Managing Director for 22 years, and was Chairman of the board from 1950 to 1958. Mr. J. A. Garnett has joined the board.

Mr. S. E. Baker, Chairman & Managing Director, and Mr. W. Allen have retired from the board of John Baker & Bessemer Limited. Mr. Henry Baker has been appointed Chairman and a Managing Director; Mr. Bernard Baker has also been appointed a Managing Director. Mr. Frank Betts and Mr. James Fouldes have been elected to the board.

Mr. M. S. Crosthwaite is relinquishing his appointment as Managing Director of Hardy Spicer Limited to become Technical Director of the company with the additional responsibility of advising the Birfield Group on the design and development of transmission equipment. Mr. K. W. Evans, formerly Managing Director, Forgings & Presswork Limited has been appointed Managing Director, Hardy Spicer Limited. Mr. R. K. Johnson, a Director of Forgings & Presswork Limited becomes Director & General Manager of that company. These appointments become effective on May 1. Mr. K. W. Evans, in addition to his appointment as Managing Director of Hardy Spicer Limited, will remain on the board of Forgings & Presswork Limited, as Deputy Chairman.



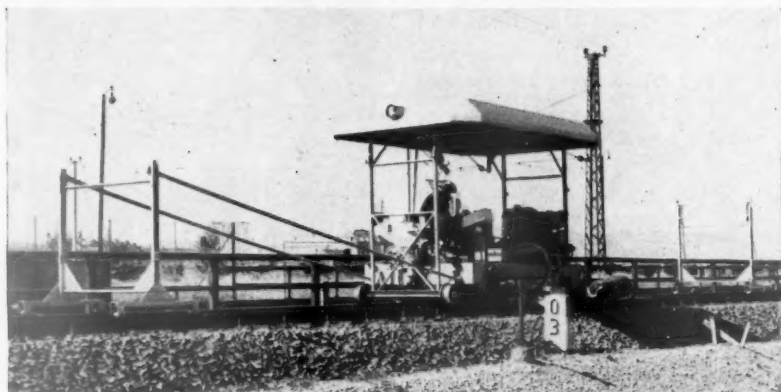
Mr. H. M. Herbert

Appointed Traffic Manager, Northern Division Scottish Region

Mr. H. M. Herbert, Assistant to the Chief Operating Superintendent, Scottish Region, British Railways, who, as recorded in our March 11 issue, has been appointed Traffic Manager, Northern Division, Scottish Region, entered the service of the London & North Eastern Railway at Ely in November, 1933, as a clerk. After service at a number of stations and in the office of the District Goods & Passenger Manager, Cambridge, he was transferred to the Chief General Manager's Office in 1938. He enlisted in the Royal Engineers (Transportation) in 1940 and served in India. In 1945 he became Assistant Director of Transportation (Rail) G.H.Q., before being demobilised, in 1946, with the rank of Lt.-Colonel. He returned to the District Superintendent's Office, Cambridge, and later transferred to the Locomotive Running Superintendent's Office, Liverpool Street. He later became a Traffic Apprentice in the Scottish Area and subsequently served in the offices of the Operating Superintendent and District Commercial Superintendent, Edinburgh, and in the Chief Regional Office at York. In 1952 he was appointed Assistant to the District Commercial Superintendent, Edinburgh, and in January, 1955, Secretary to the Scottish Area Board. Mr. Herbert was appointed Assistant to the Chief Operating Superintendent, the position which he now relinquishes, in January, 1958.

Mr. T. J. Stammers, M.M., M.Inst.T., Divisional Engineer (Central Road Services), North West Division, London Transport Executive, has recently retired. Mr. Stammers joined National Omnibus Company, London Country Area, in 1924, and in 1929 became Depot Engineer, Romford, Waltham Abbey, Bishops Stortford and Ware garages. In 1932, Mr. Stammers was made a District Engineer. In 1937, he was appointed an Assistant Divisional Engineer, London Passenger Transport Board, being restyled Sub-Divisional Engineer, with enhanced status, in 1943. He became Divisional Engineer (Rolling Stock) (Buses & Coaches), "C" Division, Central Area, in 1947, and was made an Officer of London Transport Executive in 1948. In 1950, he was redesignated Divisional Engineer (Central Road Services), North West Division, on the formation of a single organisation for central area bus, tram and trolleybus maintenance.

NEW EQUIPMENT AND PROCESSES



Track Lifting and Levelling Machine

THE high rate of track maintenance possible with modern ballast-tamping machines requires a corresponding increase in the speed of track lifting, levelling, and packing. An automatic machine now introduced to meet this requirement is the Plasser Type H.M.100 which proceeds ahead of the tamper and works up to a speed of 1,150 ft. per hr. operated by one man.

Each rail is levelled independently and a pendulum indicator is incorporated to give the required superelevation on curves. Powered by a 30-b.h.p. diesel engine driving through a three-speed gearbox and hydraulic transmission, the machine has a maximum travel speed of 30 m.p.h. in either direction.

The leveller carries two trolleys and, on reaching the site, one is anchored by tie-rods to the rear of the machine, and the other clamped to the rails 150 ft. ahead on a known high point of the track to be lifted. Stretched taut between the trolleys are two electrical contact wires lightly charged. On the fixed ahead trolley the wires are anchored to vertical posts fitted with a screwed height adjuster. On the towed trolley the wires pass over two pulleys to the drum of a hydraulic winch. A compensating device is incorporated in the cable tensioner to correct for sag variations.

Operation of the controller lowers two hydraulic jacks on to the ballast bed, hooks engage the underside of the rail and the jacks continue to lift until a contact plate on the machine touches the level wire. Lifting then ceases automatically and the jacks on the other rail begin to lift, the height of lifting being shown on a pendulum indicator. If the rail levels are required to be equal the jacks are automatically cut-off when the pendulum is in the vertical position. Alternatively, any required difference in height may be selected as the cut-off point on the indicator.

With the rails elevated to the correct

height two hydraulic tamping units are swung down on each side of the machine and the vibrating tines pack the ballast under the sleeper. Immediately the ballast is consolidated the tamping heads and jacks are retracted and the leveller moves forward to the next position.

The operator has a clear view of the work through the base of the machine and all operations are controlled electrically from a single rotary controller. The machine is fitted with pedal-operated hydraulic brakes and a hand brake. One axle is hydraulically driven, and rubber suspension units are fitted.

In addition to track levelling the machine can also be used for the lifting of old track clear of the ballast. Further details may be obtained from Plasser Railway Machinery, 46 Charlotte Street, Tottenham Court Road, London, W.1.

Multi-Purpose Globe Valve

THE "Bestobell" Two-Five-O is a standard globe valve with interchangeable trims which permit easy and quick adaptation for the control of all common factory services on transmission lines and plant, i.e., steam, water, air, and gas. It is claimed to provide low all-in annual cost of valving through standardisation of valve bodies, and long life at reasonable first cost. It requires the minimum of maintenance.

The gunmetal body and cover enclose a manganese bronze spindle operated by a cast-iron handwheel plastic-coated for comfortable handling. The gland is stuffed with a special safety pack. If the valve is fitted as an optional extra with an outside screw, the gland is of a patented split type. A back-seating device for which patents are pending permits re-packing while the valve is fully open and under pressure.

The renewable screw-in seat has eight splines for easy removal and replacement without the use of special tools. A loose

valve, horseshoe-slotted to the button end of an acme-thread spindle, is quickly replaceable.

The valve is available with screwed or flange ends for pipes ranging in diameter from $\frac{1}{4}$ in. to 3 in. Its spannerit ends are equally suitable for set spanners or for wrenches. Working pressures are: steam—up to 250 lb. per sq. in.; cold fluids—up to 400 lb. per sq. in. Maximum working temperature is 500 deg. F. B.S. 2060: 1953 requirements are fully met.

Further details can be obtained from Bell's Asbestos & Engineering (Holdings) Limited, Stoke House, Stoke Green, Slough, Bucks.

Battery-Operated Telephone

THE Interphone is a self-contained battery-operated telephone system supplied on a rental basis for periods as short as three months and claimed to give good volume of speech and buzzer at a range of one mile.

It is powered internally by ordinary flat torch batteries which are replaced free of charge every six months. Connection is made by the hirer by the use of any twin flex. The rental charge is 4s. a week for two instruments; this is reduced to 3s. if the period of hire is two years or more.

Further details may be obtained from Harvid Commodities Limited, 84 Baker Street, London, W.1.

Putties and Compounds

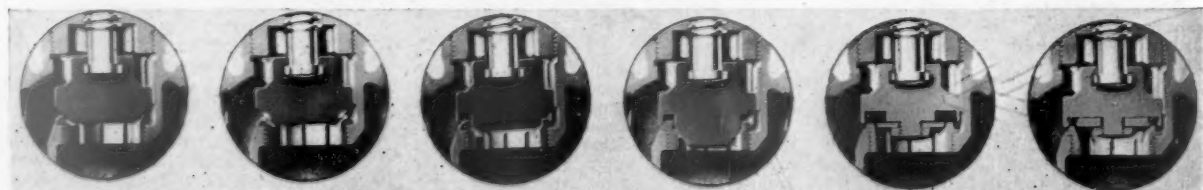
SEALON, Semas, and Semanco are two new putties and a non-hardening compound, respectively, which should be of interest to railway architects and builders.

Sealon is a ready-mixed putty for glazing into metal frames. It adheres to glass, painted metal, etched galvanised steel, or pre-treated aluminium. Setting is controlled to give fast initial hardening which prevents sag or slump. The slower setting process which follows prevents cracking and crazing and provides a durable, waterproof seal. Colour is pink, or to individual requirement.

Semas is a putty ready-mixed for bedding and pointing window frames, sub-frames, sills, and door frames into wood, metal, stone, or concrete surrounds. It is also intended for filling interstices in composite window units. Hand-applied, the putty remains flexible, does not crumble, crack or shrink, and will not bleed into surrounding material. It is available in brick, red, grey, and stone.

Semanco is a flexible, non-hardening material for filling top and side-clearance joints in glass block panels. Reddish-brown in colour, it is resistant to moisture, unaffected by alkalis and does not flow after application. It provides a permanent weatherproof joint.

Further details can be had from Expandite Limited, Chase Road, London, N.W.10.



Stainless steel mitre valve and seat

Stainless steel stellited valve and seat

Stainless steel shrouded valve and seat

Stainless steel needle valve and seat

Asbestos, rubber, or metal disk with metal seat

Viton rubber O-ring with metal seat

Opening Ceremony at Margam Marshalling Yard

Claimed to be the most modern in Europe



Lord Brecon signing the visitors' book at Margam with (left to right), Messrs. T. Hopper, J. R. Hammond, C. J. Rider, K. W. C. Grand, A. A. A. Cardani, R. F. Hanks

The opening of Margam Marshalling Yard, Port Talbot, British Railways, Western Region, took place on April 11, when Mr. K. W. C. Grand, Member of the British Transport Commission and formerly General Manager of the Western Region, made the official announcement from the control room. This was relayed over the Yard broadcasting system to the staff and a large gathering of railway officers and guests including Lord Brecon of Llanfeigan, Minister of State for Welsh Affairs, and civic dignitaries and representatives of the industrial interests concerned.

Message from Sir Brian Robertson

Mr. R. F. Hanks, Chairman of the Western Area Board, welcoming the guests, conveyed a message wishing success for the occasion from Sir Brian Robertson, Chairman of the B.T.C., who was unable to attend, and who, he said, had been the greatest source of inspiration to modernisation developments such as Margam; its actual completion this year, after so much had been said, marked one of the occasions of which the Region was proud. Mr. Hanks also expressed gratitude to all those who had worked on the scheme.

Mr. Grand supplemented his address with one prepared by Sir Brian Robertson whose indisposition prevented him giving it himself. This gave details of the B.T.C. policy of avoiding shunting and marshalling as far as possible and stressed the need to accomplish it quickly, cheaply, and with a minimum of damage, claiming that Margam must be the most modern railway marshalling yard in Europe.

Close Association with Basic Industries

It was a particularly pleasing fact that this first major railway freight development in South Wales should demonstrate the continued close association of British Railways with the basic industries and thanks were due to the Steel Company of Wales Limited for its valuable co-operation. Coal would also be a principal traffic, an indication of the service which Margam would be to South Wales generally and of the advantageous effects which freight business handled there would have far beyond the Welsh border. The aim to have a few such highly efficient yards was referred to as a

major factor in the plans to improve the freight service offered to Industry by British Railways.

The address concluded with Sir Brian Robertson's congratulations to Mr. Hanks and his colleagues, to Mr. J. R. Hammond, General Manager of the Western Region, and his officers and staff, and to the contractors who were engaged on the work which was summarised as a very fine achievement.

Hump Shunting Demonstrated

A demonstration of hump shunting followed in which a train of 53 wagons, in cuts of from one to nine, was humped into 24 sidings using a diesel locomotive; the loads included electrical cables and scrap steel. The effect of the wagon retarders

was seen to be under automatic control according to the speed of approach, the weight, and the distance to be traversed by each cut.

At a luncheon given by the British Transport Commission in Port Talbot under the Chairmanship of Mr. Hanks, a toast to the guests was proposed by Mr. Hammond who also praised the tremendous amount of work performed by those responsible for the planning stages of the Margam scheme. Alderman P. Gaen, Mayor of Port Talbot, responded and in doing so drew attention to the need for continued collaboration between all parties in the type of enterprise now undertaken if the future of industry and the welfare of the people were to be made secure.

Others attending the ceremony included:

British Transport Commission: Messrs. R. C. Bond, Technical Adviser; E. W. Arkle, Chief Traffic Officer; and A. W. Woodbridge, Chief Signal Engineer.

Western Area Board B.T.C.: Messrs. A. Chamberlain, P. Morris, F. A. Parish, and C. W. Rodd, Members; Mr. A. H. Curtis Welch, Secretary; the Hon. Anthony Berry, Former Member.

Western Region: Messrs. L. W. Ibbotson, Assistant General Manager (Modernisation); A. C. B. Pickford, Assistant General Manager (Traffic); C. W. Powell, Operating Officer; M. G. R. Smith, Chief Civil Engineer; A. A. A. Cardani, Signal Engineer; C. J. Rider, Public Relations & Publicity Officer; W. R. Stevens, Divisional Traffic Manager, South Wales; J. F. M. Taylor, District Traffic Superintendent, Swansea; J. H. C. Brennan, District Operating Officer, Swansea; N. S. Robinson, District Engineer, Neath; I. G. Roberts, Senior Resident Engineer, Margam; C. W. E. Brown, Resident Engineer, Margam; M. Henry, Former Resident Engineer, Margam; T. Hopper, Yard Master, Margam.

Other guests: Mr. John Morris, Member of Parliament for Aberavon; Mr. A. G. Curtis, Transport Commissioner for Wales & Monmouthshire.

Messrs. P. S. Bryant, W. F. Cartwright, G. G. Elliott, J. Graham, A. J. Harby, G. Hiron, C. F. Klapper, J. C. Kubale, B. B. McCausland, J. Morgan, S. Philbrick, E. H. Ramage, R. B. Southall, W. E. Wright.



Mr. K. W. C. Grand discusses with Lord Brecon, a feature of the control panel at Margam Marshalling Yard

Parliamentary Notes

Membership of Transport Planning Board

Government desire for small body not "judges in their own cause." Conflicting views on non-representation of trade unions

The Minister of Transport, Mr. Ernest Marples, asked leave of the House on April 6 to "make a statement about the body which is to advise about the British Transport Commission."

In accordance with the statement by the Prime Minister made on March 10, Mr. Marples said he had now appointed the body which would advise the Minister and the British Transport Commission.

It would be composed as follows: *Chairman*, Sir Ivan Stedeford, Chairman & Managing Director, Tube Investments Limited; and *Members*: Mr. C. F. Kearton, Joint Managing Director, Courtaulds Limited; Dr. R. Beeching, Technical Director, Imperial Chemical Industries Limited; and Mr. H. A. Benson, a partner in Cooper Brothers and Company, Chartered Accountants. The Treasury and the Ministry of Transport also would be represented.

Duties of Board

The task of the advisory body, he added, would be to examine the structure, finance and working of the organisations at present controlled by the Commission and to advise the Minister of Transport and the B.T.C. as a matter of urgency how effect could best be given to the Government's intentions as indicated in the Prime Minister's statement.

Mr. Wedgwood Benn (Bristol S.E.—Lab.) asked for confirmation that the body had no executive responsibility. Would it be free to reach conclusions other than on those questions contained with the Prime Minister's statement and also to consider the development of transport needs generally? As to the membership of the board, what had happened to the pledge made by the Prime Minister that the Commission would be represented on it? How could that body, which included no Members of the Commission or the trade unions, or anyone with railway experience, possibly reach an advisory conclusion which had any meaning as a matter of urgency?

Mr. Marples pointed out that the Government had thought of having the Commission represented on the advisory body, but on reflection, and after a great deal of thought, it was decided that the advisory body should be small and that neither the Commission nor the trade unions should be on it, because the advice of the Commission and the unions could best be put forward without inhibitions and in all freedom if they were not on the body itself.

"Purely Advisory" Body

The board would not be executive, Mr. Marples stressed, but purely advisory. Its terms of reference were extremely wide. He was quite sure that it would take into account other forms of transport when giving its advice.

Mr. Benn: Will it be free to make recommendations on matters beyond those contained within the Prime Minister's statement? The Fleck Report came out not in favour of more decentralisation, but rather the other way round.

Mr. Marples: I ask the hon. Gentleman to study the terms of reference carefully. The body is "to examine the structure, finance, and working of the organisations at present controlled by the Commission." Those terms of reference are very wide. I am extremely grateful to these men for giving up their time for this work. I think

that their advice will be extremely comprehensive.

Mr. J. Grimond (Orkney & Shetland—Lib.) said that the Minister's statement implied that the Commission was at present incapable of running its own business. If that was so, why did the Minister not get rid of those members, and, if these people [members of the planning board] knew more about transport, put them on the Commission instead? When was the new body expected to report, and did the Government intend to do anything whatever about the railways until the planning board reported?

No Judges in Their Own Cause

Mr. Marples: I cannot say when it will report, but I shall be in close touch—weekly or fortnightly—with it, so that if it makes recommendations, immediate effect can be given to them. The hon. Gentleman, as a lawyer and the leader of a great party, knows that it is very unwise for people to be judges in their own cause. As this body is to examine the question of the railways, it would be wrong in principle to have on it people who were themselves concerned.

Sir W. Robson Brown (Esher—C.) said that the Minister was to be congratulated on being able to recruit and gain the advice of such exceptional men, who had distinguished themselves in industry and could only contribute to the success of the railways.

No Political Issue

Mr. Marples: These men have been chosen for their wide, practical experience of large-scale organisations. I would hope that, as such, they would be accepted by the House, because one thing which will ruin any re-organisation will be if it becomes a party political matter again.

Mr. Desmond Donnelly (Pembroke—Lab.) said that implicit also in the Minister's statement was a grave indictment not only of the B.T.C. but also of the Ministry of Transport. Surely there were people in the Ministry with a fund of knowledge about the railways and experience of transport problems in this country, so that it should not be necessary to go outside the Ministry to seek expert advice.

Mr. Marples: The advisory body is not necessarily to give expert advice. It will be considering expert advice which is given to it. It will be in close touch with the Commission and the unions, and they and anyone else may make any recommendations they wish.

Sir Richard Nugent (Guildford—C.) said that the expert membership was just of the right sort to tackle this very difficult problem. It would be a great mistake to muddy the waters of the very difficult job which it had to do by making it a political issue. He asked the Minister to confirm that one of the tasks of the board would be to look into the working of the railway system, to disentangle the economic aspects from the uneconomic aspects, and to give advice on how the modernisation scheme should be re-modelled to meet the needs of the future and to avoid large expenditure on modernising installations and services now out of date.

Wide Powers of Board

Mr. Marples: The terms of reference are wide enough for this body to be able to make almost any recommendation it likes. These men have been chosen not on any sectional

basis. They do not represent the trade unions, the Commission, or anyone else. They have been chosen purely because they have experience of large-scale organisations, and, as such, I am quite certain they will be successful.

"Industrial Tycoons"

Mr. E. Shinwell (Easington—Lab.) observed that while it might be unexpected that the Minister would appoint somebody on this body from the railway trade unions, it would have been more in the interest of an effective, considered, and objective report to have asked the unions to suggest somebody not connected with the railways. The Minister had told the unions that this was not a party matter, but he had appointed a number of industrial tycoons who were likely to be more representative of the Tory Party.

Mr. Marples: Not necessarily. A number of very wealthy people and industrial tycoons are members of the party opposite. The members of this body have not been chosen on that basis. The trade unions and the B.T.C. have been treated the same. They can give whatever evidence they wish to this advisory group.

Mr. Paul Williams (Sunderland S.—C.) asked whether the board would be able to hear evidence from outside the railways, in particular from the shipping industry.

Mr. Marples: Yes. I am quite sure that it will welcome informed advice and opinions from interested outside bodies. That is its job. I am sure it will do it well.

Board's Connection with Industry

Mr. E. Popplewell (Newcastle-upon-Tyne W.—Lab.) said that the men appointed were, many of them, representing the same types of industry—Tube Investments Limited, I.C.I., Dorman Long, and banking and finance—from which already there were part-time members of the Area Boards. Some of them were already members of the Commission. In view of that, the Minister must realise how ridiculous his statement was. He should take it back with a view to allowing people who really understood transport to get on with the job. On the Area Boards there were part-time appointments, and the Minister had people with the same types of qualifications as those who were appointed to the advisory body. These people already were interfering with transport, and had turned it from a profitable undertaking into an undertaking showing a big deficit since they were appointed.

Knowledge of Transport

Mr. Marples pointed out that there was no member of the advisory body who was with Dorman Long and no member of the B.T.C. These men had great experience of transport. One of them gave a great deal of business—millions of pounds a year—to transport. He knew what was expected and would see that they got an efficient system.

No T.U.C. Representation

Mr. R. Mellish (Bermondsey—Lab.): Most of us on this side of the House, at any rate, honestly and sincerely believed that the time had come when politics should be taken right out of the transport industry. We have pleaded for this and, indeed, since 1947, this has been argued politically. The Minister's statement today, with the absence of reference to representatives from the

T.U.C., will now create tremendous doubts in the minds of those who work in this industry. They are very important people. The Minister should look again at the whole membership of this body and see whether or not he cannot bring the workers interested into it.

Mr. Marples: After great thought it was decided that both the Commission and the unions would be better giving evidence than deciding.

The Speaker ruled that the matter could not be debated without a question before the House.

Peers' Concern for Board Membership

Lord Mills, the Paymaster-General, made a similar statement in the House of Lords on April 6, to that made by the Minister of Transport in the House of Commons.

Viscount Alexander of Hillsborough said they did not wish to quarrel with the capacities of any of those put on this particular commission, but in examining the finance and working of the organisation of a tremendous concern like the B.T.C., and considering some of the off-shoots of these varied items of policy it would be very inadvisable to have a final report from such a body which did not include a representative of the larger trade unions, experienced in general day-to-day management of widespread national distribution.

Lord Mills: The desire of the Government was to keep this advisory body small. It can, and undoubtedly will, call on the great help which can be rendered by the trade unions and by the Members of the B.T.C.

Lord Morrison of Lambeth asked why there was on this body no person associated with labour from the trade union movement or the Co-operative Movement who could make a contribution. Why was the membership of the planning board drawn entirely from the employing side of private industry?

Lord Mills replied that they must consider whether a large body was preferable, or a smaller one confined to those with a great knowledge of the subject. The Board could call on the advice and experience of transport of the trade unions, of the B.T.C. and of anybody else with such knowledge.

The Earl of Swinton suggested that there should be one trade union and one B.T.C. representative to help the board and take part in making the final recommendations. That would ensure goodwill in carrying them out.

Lord Mills replied that the matter was not as simple as that. There were several trade unions concerned and several branches of the B.T.C.

Workers' Point of View

Lord Citrine was sure that the conclusions reached would be much more likely to find general acceptance if there was on the planning board someone with knowledge of the workers' point of view.

Lord Mills said that the Government had concluded that it would be better in this matter not to have interested parties represented, and to confine the membership to people who were really trained in organisation of business on a large scale.

Subsidising the B.T.C.

In the Budget debates in the House of Commons several speakers referred to the Chancellor of the Exchequer's plan for financing the railways.

Mr. G. A. Pargiter (Lab.—Southall) said on April 4 that the proposals for financing the B.T.C. were long overdue.

Mr. Horace King (Southampton, Itchen—Lab.) asked for increased pensions for railway superannuitants. He asked the Chancellor of the Exchequer to include this group as a national responsibility in the Finance Bill.

Burden on Taxpayer

Mr. Kenneth Lewis (Rutland & Stamford—C.) said they had now a priming of the pump through the nationalised industries. The £90 million which the Chancellor was taking from below the line and putting above the line was simply a means of making the taxpayer foot the bill for the losses of British Railways. This had been handed down by the Labour Party who nationalised the railways. The railways had represented one of the peaks, one of the so-called commanding heights of the economy. It was a retracting, out-of-date, and loss-making industry, and the taxpayer was saddled with the loss.

Financing State Industries

In the continued Budget debate on April 5, Mr. G. Nabarro (Kiddminster—C.) said he intended to continue the struggle for annual accountability of capital investment sums in all the State boards before the money was spent and not in retrospect. He wanted to drive the Chancellor of the Exchequer to a position whereby he would take the clause for financing nationalised industries out of the Finance Bill and have instead a Nationalised Industries (Capital Investment) Bill with a separate clause for the annual investment required for each of the State boards. By that means they could devote appropriate scrutiny to it.

Cancelling Railway Deficits

Mr. G. Darling (Hillsborough—Lab.), speaking in the debate on April 6, said there was nothing new, revolutionary or reprehensible in the idea of cancelling a trading deficit of a public service rather than put a load of accumulated debts upon the enterprise. It had been done before. It was done by the German Federal Government for the German Federal Railway, which was very efficient and progressive, and gave an excellent service. It was done by State railways in other countries. Those deficits on railway operations seemed to be endemic. After a Parliamentary debate and a thorough examination of the railway accounts the German Government took over the annual deficit and paid it off out of State revenues. It was not carried forward as a debt burden on the railways.

Railway Subsidy

The Chancellor, he went on, was at last proposing to pay a subsidy to the railways. Why had this not been done before? "We cannot have a poverty-stricken community of railwaymen," Mr. Darling added, "and a debt-ridden railway system." If prosperity was to be fairly shared, railwaymen must have their portion.

Questions in Parliament

Non-smoking Compartments

Dr. Alan Thompson (Dunfermline, Lab.) asked the Minister of Health, April 5, to consult with the B.T.C. with a view to ensuring that first- and second-class non-smoking compartments were available at all times and in all trains to safeguard the health of passengers suffering from chest complaints.

Mr. D. Walker-Smith, in a written answer: This, like the heating of compartments, is a matter of day-to-day railway administration. I am sure the Commission will take due note of what has been said.

FIFTH EDITION OF B.I.C.E.M.A. CATALOGUE IN 1961.—The British Internal Combustion Engine Manufacturers' Association has begun work on a fifth edition of the British Diesel Engine Catalogue. Publication is planned for February, 1961.

Staff and Labour Matters

Railway Workshop Staff

Agreement has now been reached between the British Transport Commission and the employees' side of the Railway Shopmen's National Council in regard to the unions' claim for improved rates of pay for railway workshop staff.

Under the terms of the settlement railway shopmen will receive an increase of 5 per cent back-dated to January 11, 1960. On this basis the skilled fitter's composite rate of pay will be increased by 9s. a week making his revised rate 192s. 6d. The unskilled labourer's rate will be increased by 8s. to 163s. 6d.

Discussions on Guillebaud Report

Discussions between representatives of the British Transport Commission and the unions on the report of the Railway Pay Committee of Inquiry (the Guillebaud Committee) are proceeding. Joint working parties have been formed, which are in effect sub-committees of the Railway Staff Joint Council, to work out detailed proposals as a basis for meeting the views expressed in the report.

Contracts and Tenders

British Transport Docks has placed an order with Simons-Lobnitz Limited, of Renfrew, for the construction of a diesel-electric suction dredger for use in the dredging of the approach channel to Fleetwood Docks. The primary power units of the new dredger, which will be a twin-side pipe trailing hopper type, will be two Mirlees "JLSM8" diesel engines coupled to generators supplied by the Brush Electrical Engineering Co. Ltd. who will also provide the control gear and the propulsion and pump motors. All dredging operations will be controlled entirely from the bridge. A Voith Schneider propeller will be fitted in the bow to assist in maintaining course when the vessel is dredging.

British Railways, Southern Region, has placed the following contracts:—

Geo. E. Taylor & Co. (London) Ltd.: electrical installation, Eastleigh Carriage & Wagon Works

Dawnays Limited: supply and delivery of steelwork for Essella Road footbridge, Ashford, Kent

Alfred Bagnall & Sons Ltd.: renovations, Hither Green Motive Power Depot
Structural Waterproofers Limited: re-cladding to Pullman Car and gas shops, Lancing Carriage Works

E. C. MacDermot & Company: new car park, Horsley

Maurice Hill Limited: glazing and walkways to foundry roof, Redbridge Works

B. L. Hale & Son Ltd.: new warehouse, Chichester Station

G. E. Wallis & Sons Ltd.: improvements to public inquiry office, Surbiton

Peerless Fence & Products Limited, and Pembury Fencing & Co. Ltd.: erection of lineside fencing and alterations to existing extension of electrification Kent Coast line, Phase 2.

The Export Services Branch, Board of Trade, has received calls for tenders as follow:—

From India:

4 nos. transportable electric lifting jacks for railway vehicles, with a carrying capacity per jack of 15 tons each by a small

length of overhang at the highest position of 6 ft. 6 in. lift complete with electric lifting drive. Switch trolley, transportable, with cable reel for the electric lifting jack set, with a single-point control for synchronised operation of all four jacks. The design in general to be similar to drg. No. 515979 (D.G.S. & D. No. 16011) and suitable for 400/440 V., three-phase, 50 cycles a.c. supply.

The issuing authority and address to which bids should be sent is the Director General of Supplies & Disposals, New Delhi. The tender No. is P/SR8/24338-K/11. The closing date is May 10, 1960. The Board of Trade reference is ESB/9276/60.

From Pakistan :

5 items of permanent way material.

The issuing authority and address to which bids should be sent is the Government of Pakistan, Ministry of Railways & Communications, Railway Board, Karachi, Pakistan. The tender No. is PRS-60/Rails/1. The closing date is May 10, 1960. The Board of Trade reference is ESB/9208/60/1.C.A.

From Ethiopia :

15 tons of lubricating locomotive motion oil suitable also for the lubrication of locomotive and wagon axleboxes

10 tons of lubricating oil for superheated steam locomotives

5 tons of lubricating oil for diesel railcars.

The issuing authority and address to which bids should be sent is the Imperial Ethiopian Railways Administration, Asmara. The tender No. is R.A./27. The closing date is April 15, 1960. No further information is available at the Board of Trade. The Board of Trade reference is ESB/9728/60.

Further details relating to the above tenders together with photo-copies of tender documents, unless otherwise stated, can be obtained from the Branch (Lacon House, Theobald's Road, W.C.1).

Notes and News

Facing Crossovers to Minimise Delays during Engineers' Work on Line.—British Railways, North Eastern Region, is laying, as an experimental measure, facing crossover lines on the double-track main line between Newcastle-upon-Tyne and Berwick, to reduce delays when single line working is necessary for civil engineering and work on modernisation. Twelve sets of new crossovers, some four miles apart, are being installed.

Sharnbrook Station to Close.—Sharnbrook Station between Wellingborough Midland Road and Bedford Midland Road British Railways, London Midland Region, will be closed for passenger and parcels traffic from May 2. Passengers will book to Bedford and thence by buses of the United Counties Omnibus Co. Ltd. or Birch Bros. Ltd. Parcels and passenger train merchandise will be dealt with at Wellingborough.

Child Rescued from Live Rail.—A man rescued a three-year-old boy from the live rail on the Brighton-Lewes line, British Railways, Southern Region, on April 10. The boy was wedged face down and unconscious in the gap between the running rail and the live rail. His face and hands were on the live rail and his clothes were burned away. The man stood on a wooden sleeper and snatched the boy up. He received a slight shock, but not enough to knock him over. The boy was taken to hospital.

More Station Guides in N.E. Region.—British Railways, North Eastern Region, is appointing more station guides. For some time such a guide has been a familiar figure at Newcastle-upon-Tyne and Tyne Commission Quay. An additional guide is to be appointed from May 30 for the summer season. At Leeds two guides now cover the City and Central Stations and at Bradford one covers Forster Square and Exchange

Stations. At York a station guide will be on duty from May 30. The guides' uniform is maroon with the word "information" embroidered in gold on the lapel of the jacket. They will be on duty on weekdays only and between the following hours: York, 9.40 a.m. to 5.40 p.m.; Leeds, 7.15 a.m. to 6.40 p.m. Mondays to Fridays and 7.15 a.m. to 2.10 p.m. Saturdays; Bradford, 9 a.m. to 5 p.m. Mondays to Fridays and 7 a.m. to 2 p.m. Saturdays; Newcastle, 6.30 a.m. to 9.30 p.m. Mondays to Fridays and 9.30 a.m. to 5 p.m. Saturdays.

Closure of Barnsley Court House Station.—The Eastern Region of British Railways has announced that Barnsley Court House Station will be closed to passenger traffic from April 19, 1960. Passengers will be catered for at the nearby Barnsley Exchange Station, to be renamed Barnsley as from June 13, 1960. Facilities for freight and collection/delivery services for parcels and goods smalls traffic will continue to be available.

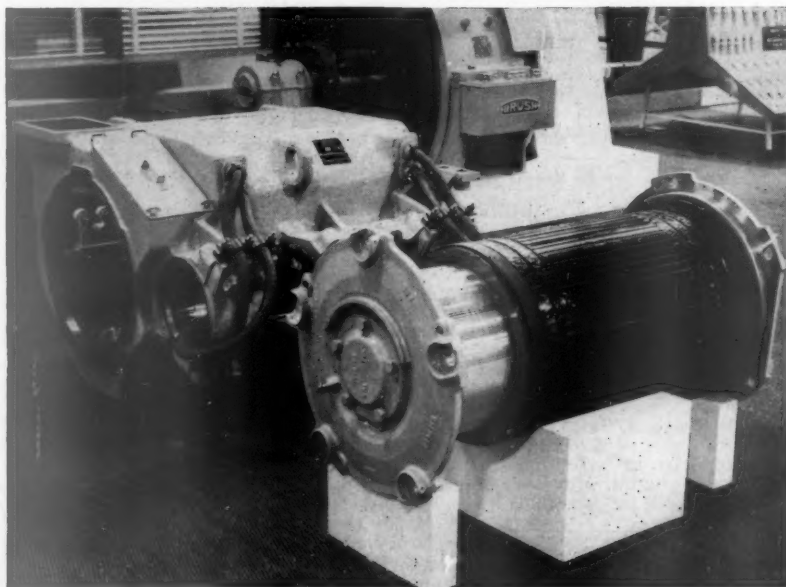
British Railways, North Eastern Region, Easter Train Services.—British Railways, North Eastern Region, has announced that during the Easter period there will be 477 additional trains. Of these, 337 are relief trains and 140 excursion trains. A Sunday service of trains will operate on Good Friday with the addition of certain relief trains, while on April 17 there will be a modified Sunday service. On Easter Monday and Tuesday, an augmented weekday service will operate, although certain morning business trains will be cancelled.

Wagons Derailed on Brighton Main Line.—Twenty wagons of the 1.5 p.m. goods train from Battersea to Three Bridges, British Railways, Southern Region, were derailed near Horley, Surrey, on April 8. Some wagons were badly damaged and a woman and her baby had a narrow escape when a subway collapsed under the derailed wagons. Both were partly buried beneath the debris, but were unhurt. Both the down lines and one of the two up lines were blocked, and services between London and the Sussex coast were affected that evening. Normal running was restored by the evening of April 10.

Mechanical Handling Exhibition, London.—The Mechanical Handling Exhibition at Earls Court, London, on May 3-13, will include time- and labour-saving equipment for most industries. One of the working models demonstrates a baggage-handling installation by J. Collis & Sons Ltd. being built as an integral part of the P. & O. liner *Canberra*; this will enable the vessel to have clean lines by avoiding the use of derricks. A wagon shunting machine and a new electronically-controlled acoustically-directed inter-office communication system for documents and small packages will be among the equipment shown. Tickets may be obtained from "Mechanical Handling," Dorset House, Stamford Street, London, S.E.1.

Institute of Traffic Administration Conference.—The annual conference of the Institute of Traffic Administration will be held at the Black Boy Hotel, Nottingham, May 20-22. The opening address of the President, Lord Merrivale of Walkhampton, will be followed by a discussion on the future pattern of traffic in Great Britain. An informal reception by the retiring Chairman of the National Conference, Mr. A. T. Hills, will be held on the first evening. The programme includes a visit to the works of Gimson & Slater Limited, manufacturers of ships' furniture, and to Belvoir Castle.

Brush at the Electrical Engineers' Exhibition



Brush Electrical Engineering Co. Ltd. 275-h.p. traction motor rotor and stator as used for Type "2" 1,365-h.p. diesel-electric locomotives supplied to British Railways, Eastern Region, at the recent Electrical Engineers' Exhibition

The annual general meeting will be held on May 21, and that evening there will be a reception by the President at the Masonic Hall, followed by the annual dinner and dance. A meeting of the National Council will be held on May 22.

C. A. Parsons & Co. Ltd. Increased Dividend.—The group profits of C. A. Parsons & Co., Ltd., manufacturers of steam turbines and electrical machinery, rose by nearly £267,000 in 1959 and the dividend is effectively raised by $1\frac{1}{2}$ per cent to $9\frac{3}{8}$ per cent. The final dividend is 5 per cent. A year ago the final of $3\frac{3}{4}$ per cent was accompanied by a special interim of $\frac{1}{8}$ per cent. The net profit of £2,209,114 compares with £2,091,284.

Pollard Ball & Roller Bearing Co. Ltd. Dividend Raised.—With a final payment of 20 per cent, payable on April 15, the ordinary dividend of Pollard Ball & Roller Bearing Co. Ltd., formerly Ferrybridge Industries Limited, for 1959 is raised to 25 per cent from the equivalent of 18 per cent for 1958, allowing for the one-for-four scrip issue. A further one-for-four scrip issue is being proposed, but the board wish to emphasise that this must not be regarded as an annual event. Group net profits have expanded to £279,830 from £152,738 previously, after allowing for tax of £235,120 (£218,383).

L.M. Region "Holiday Express" Excursion Programme.—British Railways, London Midland Region, will again run "Holiday Express" excursion trains during certain town holidays this summer. The programme includes: Birmingham, July 25-29, and August 1-5; Coventry and Walsall, July 25-28 and August 2-5; Nottingham and Derby, August 1-5; Leicester, August 8-12; Barrow-in-Furness, August 1-5. The trains will run without booked intermediate stops. They will include cafeteria cars. Each passenger is guaranteed a seat. Leaving after breakfast the trains will visit a different place each day. Accommodation is limited.

Success of Travel Film Shows at Euston.—Since free film shows were started in the Train Arrival Bureau at Euston Station, British Railways, London Midland Region, early in March, for travellers with a little time to spare, well over 3,000 people have seen travel films of Britain and the Continent. The shows are to be continued on their present basis, with five shows on Mondays and Fridays, throughout the summer, with a probably increase next September. The films are timed so that people who work nearby can come in their lunch hour, while people who wish to avoid the evening rush hour can do so by seeing a film for half an hour or so. Occasionally films showing the progress of modernisation of British Railways will be included in the programmes.

Western Region Train Alterations.—From April 4 the 12.10 p.m. from Paddington to Birmingham and Wolverhampton and the 12.20 p.m. from Wolverhampton to Paddington, both new trains introduced last November, have been withdrawn. From the same date the 9.30 a.m. from Bournemouth West to Birkenhead and the 9.20 a.m. from Birkenhead to Bournemouth, to which the London trains ran coupled between Banbury and Wolverhampton, have been provided with a restaurant car throughout. The 8.55 a.m. from Birkenhead to Paddington now calls additionally at Banbury (12.52—12.54 p.m.) and arrives at 2.15 p.m. 5 min. later. Except on Saturdays, the 7.30 p.m. from Paddington to Wolverhampton via Oxford runs no further than Banbury. Buffet car facilities are withdrawn from the 7.30 and 9.45 p.m. from Paddington to Banbury (via Oxford) and Worcester, respectively, and the 8.15 p.m. from Birmingham (via

Oxford), the 1.50 p.m. from Hereford and the 5.35 p.m. from Oxford to Paddington. The 2.55 p.m. from Paddington to Swansea, and the 3.5 p.m. to Bristol are now combined as far as Swindon, starting at 3.5 p.m.; the former (previously non-stop from Reading to Newport) is 22–25 min. later at all stops from Newport to Swansea, reached at 7.35 p.m., and the latter reaches Bristol 10 min. later, at 5.35 p.m.

A. Reyrolle & Co. Ltd. Dividend Unchanged.—For the fourth year in succession A. Reyrolle & Co. Ltd., electrical engineers and manufacturers, is to bring the total dividend on its ordinary stock up to $17\frac{1}{2}$ per cent with an unchanged final of 11 per cent. Net profits advanced to £1,428,021 in 1959, from £1,358,257 in 1958, after paying tax of £1,157,984 (£1,353,724).

Increased Goods Traffic in the North Eastern Region.—During the first twelve weeks of 1960 British Railways, North Eastern Region, moved more than 14,000,000 tons of freight, an increase of nearly 1,500,000 tons, or 10.99 per cent, compared with the same period of last year. This upward trend was particularly evident in coal and coke and other mineral traffic, which was up by 1,220,700 tons (coal and coke 7.29 per cent, other mineral traffic 26.08 per cent). Total receipts for all traffic were £13,807,000, an overall increase of £712,000.

W. E. Sykes Limited Interim Report.—In an interim report the directors of W. E. Sykes Limited, manufacturers of gear cutting machines and machine tools, have stated that they expect consolidated profits for the current year ending April 30 next will justify maintenance of a 20 per cent dividend. It is reported that the audited accounts for Kendall & Gent Limited and its wholly owned subsidiary, George Garner & Sons Ltd., show a group profit for the year ended September 30, 1959, which was eight weeks after W. E. Sykes Limited acquired most of the share capital of £20,628 after charging depreciation but before tax, which is less than one-third of the comparable figure of £73,079 for the previous year.

Satisfactory Prospects for Alfred Herbert Limited.—Several new machines tools were added in the year ended October 31, 1959, to the range produced by Alfred Herbert Limited. The Chairman of the company, Colonel C. W. Clark, points out the company's present problem is to comply with the demand for these and certain other models which enjoy an established popularity. Such is the demand for the company's goods, he states, that there should be no difficulty at all in repeating last year's ordinary dividend. The associate companies in Australia, France and Italy continue to make satisfactory profits in view of the restricted imports which until recent months limited their turnover. The position in these countries has now improved. Group net profit for 1958–59 fell from £1,585,041 to £1,366,342, and the dividend is raised by 1 per cent to 7 per cent tax free, in view of the improved position. A capital bonus of $\frac{1}{2}$ per cent was also paid.

Hovercraft for Cross-Channel Service.—The view that a 1,000-ton hovercraft for cross-Channel service could be built at a cost of £4,000,000 was expressed by Mr. Christopher Cockerell, inventor of the hovercraft, in a paper read recently to the Royal Society of Arts in London. This, he stated, meant that for the estimated cost of the least expensive project for a Channel tunnel, 18 such hovercraft could be provided, or 50 for the price of a Channel bridge. Each would carry 1,500 passengers and 200 motorcars, with baggage. The operating costs,

Mr. Cockerell added, would be smaller even than those of ship ferries. The hovercraft could do the work of five or more 3,500-ton ships many times faster. Neither aeroplanes nor helicopters could compete on short routes such as the Channel crossing, and a fleet of aeroplanes to move the same amount of traffic would cost four times as much. The ideal, economical speed for a Channel ferry, he stated, had been calculated at 80–140 m.p.h.

Superheater Co. Ltd. Dividend Unchanged.—A final dividend of $17\frac{1}{2}$ per cent., payable on June 1, maintains the total distribution on the ordinary and "A" ordinary shares of Superheater Co. Ltd. for 1959 at 25 per cent, which last time included a bonus of $1\frac{1}{8}$ per cent. Profits of the parent company for 1959 declined slightly to £403,561 from £408,742 previously, after charging tax of £369,507 (£442,172).

David Brown Corporation Limited Results.—The Group profit, before taxation, of David Brown Corporation Limited, for the year ended June 30, 1959, including £100,000 (nil) compensation received by a subsidiary, was £167,598 (£703,336) and no ordinary dividend (same). Current assets were £10,288,752 (£10,386,732) and liabilities £6,467,400 (£6,397,572), including overdrafts, £2,697,672 (£2,241,546). Commitments were £285,000 (£340,000).

New Cars by Rail to Scotland.—The London Midland and Scottish Regions of British Railways, have introduced a special car delivery service which operates three times a week from Chiltern Green, Herts, to Bonnybridge in Scotland. Each train is loaded with 60 new Vauxhall cars or vans for Scottish distributors. These special trains are being provided for Anglo-Scottish Car Deliveries Limited who has leased the goods yard to Chiltern Green which it has fitted with special ramps and platforms to facilitate loading the cars on to the rail vehicles.

British Transport Advertising Modernise Poster Sites.—Plans to modernise the 48 sheet (20 ft. by 10 ft.) poster sites at three Eastern Region stations have been announced by British Transport Advertising. At Finsbury Park, two joined 48 sheet sites on an island platform are to be replaced by a double-sided board. Other joined 48 sheet sites on an island platform at Shenfield & Hutton are to be replaced by a separate double-sided board. A similar site at Walthamstow, Hoe Street, is to be replaced by a single-sided 48 sheet board. The plans form part of an extensive programme for improving British Transport Advertising sites concurrently with the railway modernisation programme.

Lancashire United Transport Limited Results.—A final dividend of $8\frac{1}{2}$ per cent, making $12\frac{1}{2}$ per cent for 1959 (same equivalent), has been declared by Lancashire United Transport Limited. The net profit was £118,716 (£73,472). Owing to the merger of the operations of the former subsidiary, South Lancashire Transport Co. Ltd., with company in August, 1958, no strict comparison can be drawn between the figures for the two years. The profit was struck after tax £81,456 (£84,571), less unrequired tax £3,153 (£3,360), adjustment of final dividend for 1958 due to alteration in tax rate £2,072 (nil), rates applicable to previous years due to reassessment of properties £7,625 (nil) and bonus issue expenses £2,711 (nil). To general reserve was £75,567 (£10,000).

European Federation on Corrosion.—The British Association of Corrosion Engineers has been elected a member of the European

Federation of Corrosion. The object of the Federation is to promote European co-operation in the field of research on corrosion and methods of combating it. Membership is restricted to non-profit making European technical and scientific societies connected with corrosion or the protection of materials.

New B.R.S. Depot Opened in Liverpool.—The new British Road Services depot at Townsend Lane, Liverpool, was opened recently by Major-General G. N. Russell, Member of the British Transport Commission and formerly Chairman & General Manager, British Road Services Division, B.T.C. The depot includes a canteen on the third floor, operated by Peter Merchant Limited. This caters not only for the B.R.S. staff at the depot but also for local and long-distance lorry drivers who call at the depot for parcel loading and unloading. The canteen provides both day and night meal services, with a tea bar plant in the main loading bay.

Busmen's Wage Claims.—The National Council for the Omnibus Industry at a meeting held in London on April 11 considered further, at the request of the trade unions, the claims before the Council at its previous meetings in February, and also a fresh claim in respect of longer holidays for long-service employees. Claims for wage increases for all workers, a reduced working week, one-man operation, standing passengers, conditions relating to skilled maintenance workers, the definition of shifts for certain maintenance workers and longer holidays for long-service employees were referred to a special committee of the Council.

"The Silver Arrow Story."—A new industrial film—"The Silver Arrow Story"—commissioned jointly by Silver City Airways, British Railways, and French Railways, was shown to travel and transport journalists in London on April 5. The film, which is in colour, runs for 15 min. and shows the journey of a teenage girl from London to Paris via the Silver Arrow service. Stress is laid on the personal attention which is given to the passenger throughout the journey, and the comfort, speed, and efficiency of the service. Several attractive shots of London and Paris are included. Copies of the film, which was produced by Stanley Schofield Productions, are available on loan from Silver City Airways at 62, Brompton Road, London, S.W.3, the British Transport Commission Film Library, or from French Railways.

Forthcoming Meetings

April 19 (Tue.) to April 23 (Sat.).—Model Railway Exhibition at the Central Hall, Westminster, S.W.1.

April 19 (Tue.).—Railway Correspondence & Travel Society, West Midlands Branch, at 46, Holyhead Road, Coventry, at 7.30 p.m. Paper on "The Festiniog Railway," by Mr. W. F. Smallman.

April 23 (Sat.).—Permanent Way Institution, London Section. Visit to Pumping Station, Severn Tunnel.

April 25 (Mon.).—Institution of Railway Signal Engineers, Bristol Section, at Temple Mead Station, Bristol, at 6 p.m. Annual general meeting, followed by a paper on "Single line working," by Mr. J. V. Nicholson, British Railways, Western Region.

April 26 (Tue.) to April 29 (Fri.).—Institute of Transport 1960 Congress in London.

April 26 (Tue.).—Institution of Locomotive Engineers, at the Institution of Mechanical Engineers, 1, Birdcage Walk, Westminster, S.W.1, at 5.30 p.m. Paper on "Steel wheels and tyres," by Mr. C. F. Ryan, and Mr. B. B. Hundy.

April 26 (Tue.).—Railway Correspondence Travel Society, East Midlands Branch, at the Thurland Hall (Pelham Street entrance), Nottingham, at 7.10 p.m. Paper on "London & South Western Suburban," by Mr. R. E. Tustin.

April 28 (Thu.).—The Permanent Way Institution, Nottingham & Derby Section, in the Victoria Station Hotel, Nottingham, at 6.30 p.m. Paper on "Some problems of a Works Inspector," by Mr. E. Holton, Works Inspector, Melton Mowbray.

April 28 (Thu.).—Institute of Transport, at the Dorchester Hotel, Park Lane, W.1, at 7.15 for 8 p.m. Annual dinner.

April 29 (Fri.).—Crewe Pupils & Apprentices' Association dinner at the Royal Automobile Club, Pall Mall, S.W.1.

April 30 (Sat.).—Railway Correspondence & Travel Society, at the Windsor Castle, Vauxhall Bridge Road, S.W.1, annual dinner.

May 4 (Wed.).—Permanent Way Institution, Nottingham & Derby Section. All-day tour of London Docks.

May 5 (Thu.).—Model Railway Club, at Keen House, Calshot Street, King's Cross, N.1, at 7.45 p.m. A talk on "The Southwold Railway," by Mr. E. R. Boston.

May 5 (Thu.).—Railway Correspondence & Travel Society, Sheffield Branch, at Livesey-Clegg House, Sheffield, at 7.30 p.m. Paper on "Railway transportation in France during the second world war," by Mr. J. Blundell.

May 6 (Fri.).—The Railway Club, at the Royal Scottish Corporation, Fetter Lane, E.C.4, at 7 p.m. Paper on "Modern railway signalling developments," by Mr. P. Broadley.

OFFICIAL NOTICES

REPUBLIC OF THE SUDAN

APPLICATIONS are invited from those suitably qualified to fill a vacancy in the Sudan Railways as Superintendent Electrical Engineer. Candidates should be fully qualified electrical and diesel engineers and should be corporate members of the Institution of Electrical Engineers or possess an equivalent qualification. They must have served full apprenticeship with a railway and/or recognised diesel electric locomotive manufacturers; should have an extensive experience in the repair, maintenance and operation of main line Diesel electrical locomotives; have had a sound experience in industrial and domestic electrical installations and maintenance and repair of various types of electrical machinery and switch gear. Must also have a sound knowledge of operation and maintenance of quay machinery, mobile and train lighting equipment and be capable of controlling staff and labour.

Age limit—35–50 years.
Appointment will be on contract for a period of three years in the salary range of £S. 1,750—£S. 2,170 (with bonus). Starting point will be fixed according to age, qualifications and experience. A cost-of-living allowance is payable, at present £S.187 per annum, and an initial outfit allowance of £S.50 is payable on appointment. (£S. 1 equals £1.0s. 6d.). No income tax is payable in the Sudan.

Generous leave on full pay with free air passage for official and family.

Application should be made in writing, quoting particulars of qualifications, experience and age, and enclosing copies of recent testimonials, to the Appointments Section, Sudan Embassy, Cleveland Row, St. James's, London, S.W.1. (quoting reference number 4/1937).

Closing date May 15, 1960.

Railway Stock Market

The mixed reception given to the Budget has been reflected in stock markets, where uncertainty revived because of divergent views whether the Chancellor of the Exchequer will take special steps to slow down expansion in credit, and the means by which this may be effected. The obvious course would be a further rise in the bank rate from 5 to 6 per cent; but this would affect industry generally and have a restraining effect on industries playing an important part in export trade besides those which are expanding at home.

Mr. Heathcoat Amory has said he desires further reduction in spending in the home market, and this could be effected by return of hire purchase controls of some kind. Already the banks are slowing down the rate of expansion in their lending, and it may be that special measures by the Chancellor to accelerate this may not be necessary.

While doubts of this kind persist it is hardly surprising that stock markets are unsettled, and that buyers are following a wait-and-see policy. There has not been much selling.

Very little business was transacted among foreign rails. Costa Rica ordinary stock changed hands at slightly under 30, and Chilean Northern 5 per cent debentures marked 56.

Dealings in United of Havana consolidated stock marked at under $\frac{1}{2}$, but the second income stock strengthened to 6. Mexican Central "A" bearer debentures were 57 $\frac{1}{2}$ and Sao Paulo Railway 3s. units were again 1s. 4 $\frac{1}{2}$ d. Antofagasta ordinary stock was 13 $\frac{1}{2}$ and the preference stock 27 $\frac{1}{2}$. Canadian Pacific have been firmer at \$45 $\frac{1}{2}$.

Among engineering and kindred shares, Beyer Peacock 5s. shares were 8s. 3d. and Charles Roberts 5s. shares, 15s., while Westinghouse Brake were 51s. Elsewhere, Birmingham Wagon have strengthened to 40s. 9d. and North British Locomotive Company, after improving to 11s. came back to 10s. 6d.

Despite the good results, the raising of the dividend from 25 per cent to 30 per cent, and news of a coming rights issue to provide money for the expansion programme, Pressed Steel 5s. shares moved lower at 40s. 9d. This reflected profit-taking, and, later, the lower price of the shares attracted buyers. Dowty Group 10s. shares were firmer at 36s.

In other directions, Pollard Bearing 4s. shares have been firm at 46s. 3d. Ransomes & Marles 5s. shares were 25s. at which there is a yield of just under 3 $\frac{1}{2}$ per cent on the basis of the 17 $\frac{1}{2}$ per cent dividend, which reflects the belief that favourable conditions are likely to continue for the company and that in future a more liberal dividend policy may be followed.

Ruston & Hornsby shares have strengthened from 29s. 6d. to 30s., but Stone-Platt, after moving higher, eased to 57s. 3d. Cammell Laird 5s. shares at 8s. 10 $\frac{1}{2}$ d. were unchanged on balance. T. W. Ward were lower at 151s. Broom & Wade 5s. shares have changed hands around 18s. 9d.

Allied Ironfounders were higher on balance at 75s. 6d., but there were losses among iron and steel shares ranging down to 2s. 6d. on balance. This is because buyers of steel shares are tending to wait until the Richard Thomas offer-back of their shares to the public. It is expected in the City that the terms of this issue will be attractive. The issued ordinary capital of just under £11,000,000 is likely to have a market value of between £35,000,000 and £40,000,000 on the issue terms according to the latest views in the City.

